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ANALYSIS AND COMPUTER PROGRAM FOR EVALUATION OF AIRBREATHING PROPULSION EXHAUST NOZZLE PERFORMANCE

S. Wehofer and W. C. Moger

ARO, Inc.

May 1973

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FOREWORD

The work reported herein was conducted at the Arnold Engineering Development Center (AEDC). The initial development of the work was sponsored by the Air Force Aerospace Propulsion Laboratory (AFAPL), Air Force Systems Command (AFSC), Wright-Patterson Air Force Base, Ohio. The final phase of the work was sponsored by the Air Force Flight Dynamics Laboratory (AFFDL), Air Force Systems Command (AFSC), Wright-Patterson Air Force Base, Ohio, under Program Element 65401F.

The results of the research presented were obtained by ARO, Inc. (a subsidiary of Sverdrup & Parcel and Associates, Inc.) contract operator of AEDC, AFSC. The bulk of the research was conducted from January 1969 to June 1970 under Project Number RD0850. Refinement and extension of the work was conducted from July 1970 to June 1971 under Project Number RW5113, and from July 1971 to the present under ARO Project Number RF242. This report was submitted for publication on November 30, 1972.

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This technical report has been reviewed and is approved.

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ABSTRACT

An analytical technique based on the time-dependent flow equations has been developed to predict the inviscid transonic flow field in axisymmetric propulsion nozzles. The analysis includes the treatment of axisymmetric nonuniform nozzle inlet profiles of total pressure, total temperature, specific heat, and molecular weight. The analysis is also capable of considering convergent-divergent, convergent, and shrouded or unshrouded plug nozzle geometries. A computer listing and three sample calculations are presented to illustrate some of the capabilities of the program.

CONTENTS

APPENDIXES

NOMENCLATURE

A	Cross-sectional area
a, b, c	Constants in expression for specific heat
C_D	Discharge coefficient
C_F	Thrust coefficient
c_p	Specific heat at constant pressure
c_v	Specific heat at constant volume
D	Diameter
E	Internal energy per unit volume
e	Energy per unit volume
ℓ	Time station index
M	Mach number or downstream boundary axial station
m	Axial station index
n	Radial station index
P	Static pressure
P_o	Total pressure
R	Gas constant
R_c	Normalized radius of wall curvature (radius of curvature/throat radius)
r	Radial distance from nozzle centerline
s_i	Radial coordinate of nozzle centerbody
s_o	Radial coordinate of nozzle wall
T	Static temperature
T_o	Total temperature
t	Time
u	Axial velocity component
V	Vector velocity
v	Radial velocity component

W, F, G, H	Variables
W_f	Weight flow
w	Tangential velocity
x	Axial distance from nozzle inlet
y	Transformed radial coordinate
Δ	Small increment
θ	Flow angle
ρ	Density

SUBSCRIPTS

1-D	One dimensional
g	Gas
w	Wall
∞	Ambient

SUPERSCRIPTS

$*$	Sonic
$'$	Differentiation with respect to x

SECTION I
INTRODUCTION

An analytical method for predicting the exhaust nozzle performance of airbreathing propulsion systems must consider a wide variety of flow conditions for both convergent-divergent and convergent conical nozzle geometries. There are several analytical analyses available (i. e., Refs. 1, 2, and 3) which can be used to evaluate the performance of some turbojet nozzle flow fields. Unfortunately, there are inherent limitations in the analytical approaches generally available to systems groups which preclude their use in the quantitative evaluation of some of today's turbojet nozzle flows. One of the most restrictive features is that the flow is assumed to have uniform flow stagnation conditions and gas properties. The purpose of the present work was to develop a computer program to predict the inviscid subsonic-transonic flow field for actual operating conditions in axisymmetric turbine engine exhaust nozzles.

The most logical candidate for solving the general nozzle flow field is the direct numerical integration of the main governing differential equations - continuity, axial and radial momentum, and energy. The equations are posed in time-dependent form and use a Lax-Wendroff (L-W) (Ref. 4) finite differencing scheme. The present computation method was adopted after the work presented in Ref. 5. The first version of the present computer program was reported in Ref. 6. Since publication of Ref. 6, a centerbody option has been added to the program, and the analysis has been extended to evaluate flow fields for both subsonic and supersonic nozzles. Also, several programming improvements have been made to reduce machine time requirements and to improve the accuracy near the boundaries.

This report presents the method of analysis, a description of the numerical scheme, and a description of the program boundary conditions. Sample calculations for a supersonic convergent-divergent, plug, and unchoked convergent-divergent nozzle are presented. A complete computer listing is presented in Appendix VI.

SECTION II
METHOD OF ANALYSIS

The fluid is assumed to be inviscid, non-heat conducting, and thermally perfect. The flow field is assumed to be axisymmetric. The general solution consists of solving the following relations:

Continuity:

$$\frac{\partial}{\partial t}(\rho r) + \frac{\partial}{\partial x}(\rho u r) + \frac{\partial}{\partial r}(r\rho v) = 0 \tag{2.1a}$$

Axial Momentum:

$$\rho\frac{\partial}{\partial t}(ur) + \rho u\frac{\partial}{\partial x}(ur) + \rho v r\frac{\partial u}{\partial r} = -\frac{\partial}{\partial x}(Pr) \tag{2.1b}$$

Radial Momentum:

$$\rho\frac{\partial}{\partial t}(vr) + \rho u\frac{\partial}{\partial x}(vr) + \rho v r\frac{\partial v}{\partial r} - \rho w^2 = -r\frac{\partial P}{\partial r} \tag{2.1c}$$

Tangential Momentum:

$$\rho\frac{\partial}{\partial t}(wr) + \rho u\frac{\partial}{\partial x}(wr) + \rho v r\frac{\partial w}{\partial r} + \rho v w = 0 \tag{2.1d}$$

Energy:

$$\frac{\partial}{\partial t}(er) + \frac{\partial}{\partial x}[(e+P)ur] + \frac{\partial}{\partial r}[(e+P)vr] = 0 \tag{2.1e}$$

---

[1]While this expression is included in the derivation, the tangential velocity has not been added to the computer program.

Multiplying the continuity equation (2. 1a) by u, v, and w successively and adding each expression successively with (2. 1b), (2. 1c), and (2. 1d), give

$$\frac{\partial}{\partial t}(\rho ur) + \frac{\partial}{\partial x}(\rho u^2 r) + \frac{\partial}{\partial r}(\rho uvr) = -\frac{\partial}{\partial x}(Pr) \tag{2. 2a}$$

$$\frac{\partial}{\partial t}(\rho vr) + \frac{\partial}{\partial x}(\rho uvr) + \frac{\partial}{\partial r}(\rho v^2 r) = -\frac{\partial}{\partial r}(Pr) + P + \rho w^2 \tag{2. 2b}$$

$$\frac{\partial}{\partial t}(\rho wr) + \frac{\partial}{\partial x}(\rho uwr) + \frac{\partial}{\partial r}(\rho vwr) = -\rho vw \tag{2. 2c}$$

Letting

$$\left.\begin{array}{l} h = \rho r \;,\quad d = \rho ur \;,\quad k = \rho vr \;, \\ \\ z = \rho wr \;,\quad f = er \;,\quad q = Pr \end{array}\right\} \tag{2. 3a}$$

and noting that

$$\left.\begin{array}{l} \dfrac{d^2}{h} = \rho u^2 r \;,\quad \dfrac{k^2}{h} = \rho v^2 r \;,\quad \dfrac{dk}{h} = \rho uvr \;,\quad \dfrac{dz}{h} = \rho uwr \;, \\ \\ \dfrac{kz}{h} = \rho vwr \;,\quad \dfrac{z^2}{hr} = \rho w^2 \;,\quad \dfrac{kz}{hr} = \rho vw \end{array}\right\} \tag{2. 3b}$$

then Eqs. (2. 1a), (2. 1e), (2. 2a), (2. 2b), and (2. 2c) can be written as

$$\frac{\partial h}{\partial t} + \frac{\partial d}{\partial x} + \frac{\partial k}{\partial r} = 0 \tag{2. 4a}$$

$$\frac{\partial d}{\partial t} + \frac{\partial}{\partial x}\left(\frac{d^2}{h} + q\right) + \frac{\partial}{\partial r}\left(\frac{dk}{h}\right) = 0 \tag{2. 4b}$$

$$\frac{\partial k}{\partial t} + \frac{\partial}{\partial x}\left(\frac{dk}{h}\right) + \frac{\partial}{\partial r}\left(\frac{k^2}{h} + q\right) = \frac{q}{r} + \frac{z^2}{hr} \tag{2. 4c}$$

$$\frac{\partial z}{\partial t} + \frac{\partial}{\partial x}\left(\frac{dz}{h}\right) + \frac{\partial}{\partial r}\left(\frac{kz}{h}\right) = -\frac{kz}{hr} \tag{2. 4d}$$

$$\frac{\partial f}{\partial t} + \frac{\partial}{\partial x}\left[(f+q)\frac{d}{h}\right] + \frac{\partial}{\partial r}\left[(f+q)\frac{k}{h}\right] = 0 \tag{2. 4e}$$

These are the desired conservation forms for the main differential equations. Next, these conservation forms will be expressed as one single vector equation.

2.1 VECTOR FORM OF CONSERVATION EQUATIONS

Using a second order polynominal to represent the specific heat temperature relation gives

$$c_p(T) = a + bT + cT^2 \tag{2.5}$$

and from the definition of E

$$E = \frac{e}{\rho} - \frac{V^2}{2} \tag{2.6}$$

the equation of state may be written as,

$$E = \int c_v dT = \frac{P}{\rho}\left(\frac{a}{R_g} - 1\right) + \left(\frac{P}{\rho}\right)^2 \frac{b}{2R_g^2} + \left(\frac{P}{\rho}\right)^3 \frac{c}{3R_g^3} \tag{2.7}$$

Now noting from Eq. (2.3) that

$$V^2 = \frac{d^2 + k^2 + z^2}{h^2} \tag{2.8}$$

Then Eq. (2.6) may be written as

$$q\left(\frac{a}{R_g} - 1\right) + \frac{b}{2R_g^2}\frac{q^2}{h} + \frac{c}{3R_g^3}\frac{q^3}{h^2} = f - \frac{1}{2}\frac{d^2 + k^2 + z^2}{h} \tag{2.9}$$

This relation shows that q can be expressed in terms of only the variables appearing in the first terms of Eq. (2.4).

Now consider four vectors (W, F, G, and H) defined by the variables h, d, k, z, and f. Let these vectors be defined by the following components:

$$\left.\begin{array}{l}
W_1 = h \; , \; W_2 = d \; , \; W_3 = k \; , \; W_4 = z \; , \; W_5 = f \\[2ex]
F_1 = d \; , \; F_2 = \dfrac{d^2}{h} + q \; , \; F_3 = \dfrac{dk}{h} \; , \; F_4 = \dfrac{dz}{h} \; , \; F_5 = (f+q)\dfrac{d}{h} \\[2ex]
G_1 = k \; , \; G_2 = \dfrac{dk}{h} \; , \; G_3 = \dfrac{k^2}{h} + q \; , \; G_4 = \dfrac{kz}{h} \; , \; G_5 = (f+q)\dfrac{k}{h} \\[2ex]
H_1 = 0 \; , \; H_2 = 0 \; , \; H_3 = \dfrac{q}{r} + \dfrac{z^2}{hr} \; , \; H_4 = -\dfrac{kz}{hr} \; , \; H_5 = 0
\end{array}\right\} \tag{2.10}$$

From these definitions and Eq. (2.9), it is seen that the vectors F, G, and H are a function of W. Therefore, the conservation forms of Eq. (2.4) may be expressed in terms of the above vectors as one single vector equation.

$$\frac{\partial}{\partial t} W + \frac{\partial}{\partial x} F(W) + \frac{\partial}{\partial r} G(W) = H(W) \tag{2.11}$$

The system (2.11) is called the conservation-law form.

2.2 FINITE DIFFERENCING SCHEME (LAX-WENDROFF)

The components of the vectors in Eq. (2.11) from Eq. (2.10) can also be written as

$$W_1 = h \ , \ W_2 = d \ , \ W_3 = k \ , \ W_4 = z \ , \ W_5 = f$$

$$\begin{aligned}
&F_1 = W_2 \ , \ F_2 = \frac{W_2^2}{W_1} + q \ , \ F_3 = \frac{W_2 W_3}{W_1} \ , \ F_4 = \frac{W_2 W_4}{W_1} \ , \ F_5 = \frac{W_2}{W_1}(W_5 + q) \\
&G_1 = W_3 \ , \ G_2 = \frac{W_2 W_3}{W_1} \ , \ G_3 = \frac{W_3^2}{W_1} + q \ , \ G_4 = \frac{W_3 W_4}{W_1} \ , \ G_5 = \frac{W_3}{W_1}(W_5 + q) \\
&H_1 = 0 \ , \ H_2 = 0 \ , \ H_3 = \frac{W_4^2}{W_1 r} + \frac{q}{r} \ , \ H_4 = -\frac{W_3 W_4}{W_1 r} \ , \ H_5 = 0
\end{aligned} \tag{2.12}$$

Also from Eq. (2.9),

$$q\left(\frac{q}{R_g} - 1\right) + \frac{b}{2R_g^2}\frac{q^2}{W_1} + \frac{c}{3R_g^3}\frac{q^3}{W_1^2} = W_5 - \frac{W_2^2 + W_3^2 + W_4^2}{2W_1} \tag{2.13}$$

Let $W^{\ell}_{m,n}$ represent the function $W(t + \ell\Delta t, \ x + m\Delta x, \ r + n\Delta r)$ where ℓ, m, n can be integers or $\pm 1/2$. $F(W^{\ell}_{m,n})$ will be abbreviated by $F^{\ell}_{m,n}$. Finally, $\langle W\rangle^{\ell}_{m,n}$ will stand for the difference approximation to the partial derivative, W_t, centered at ℓ, m, n.

All functions are assumed to be known at the grid points of the initial data surface, $\ell = 0$. The function W can then be calculated at $\ell = 1$ by a forward difference scheme. Second-order accuracy is achieved if the differences are centered at $(t + \frac{\Delta t}{2}, x, r)$. Thus, the difference approximation to Eq. (2.11) reads:

$$<W_t>^{1/2}_{0,0} = -<F_x>^{1/2}_{0,0} - <G_r>^{1/2}_{0,0} + <H>^{1/2}_{0,0} \tag{2.14a}$$

where

$$<W_t>^{1/2}_{0,0} = \frac{1}{\Delta t}(W^1_{0,0} - W^0_{0,0}) \ , \ <F_x>^{1/2}_{0,0} = \frac{1}{\Delta x}(F^{1/2}_{1/2,0} - F^{1/2}_{-1/2,0}) \ , \ <G_r>^{1/2}_{0,0} = \frac{1}{\Delta r}(G^{1/2}_{0,1/2} - G^{1/2}_{0,-1/2}) \tag{2.14b}$$

Substituting Eq. (2.14b) into Eq. (2.14a) gives

$$W^1_{0,0} = W^0_{0,0} + \Delta t[-\frac{1}{\Delta x}(F^{1/2}_{1/2,0} - F^{1/2}_{-1/2,0}) - \frac{1}{\Delta r}(G^{1/2}_{0,1/2} - G^{1/2}_{0,-1/2}) + H^{1/2}_{0,0}] \tag{2.15}$$

To calculate the function $F^{1/2}_{\pm 1/2, 0}$, etc., first the calculation of $W^{1/2}_{\pm 1/2, 0}$, $W^{1/2}_{0, \pm 1/2}$, and $W^{1/2}_{0, 0}$ is required. These terms can be obtained from a truncated Taylor series expansion as

$$W(t + \frac{\Delta t}{2} \ , \ x \pm \frac{\Delta x}{2} \ , \ r) = W(t \ , \ x \pm \frac{\Delta x}{2} \ , \ r) + \frac{\Delta t}{2} W_t(t \ , \ x \pm \frac{\Delta x}{2} \ , \ r) \tag{2.16a}$$

$$W(t + \frac{\Delta t}{2} \ , \ x \ , \ r \pm \frac{\Delta r}{2}) = W(t \ , \ x \ , \ r \pm \frac{\Delta r}{2}) + \frac{\Delta t}{2} W_t(t \ , \ x \ , \ r \pm \frac{\Delta r}{2}) \tag{2.16b}$$

$$W(t + \frac{\Delta t}{2} \ , \ x \ , \ r) = W(t \ , \ x \ , \ r) + \frac{\Delta t}{2} W_t(t \ , \ x \ , \ r) \tag{2.16c}$$

Here the first terms of Eq. (2.16a) can be taken as the average of $W^0_{0,0}$ and $W_{\pm 1, 0}$. Similarly, the first term of Eq. (2.16b) can be taken as the average of $W^0_{0,0}$ and $W^0_{0,\pm 1}$. The first term of Eq. (2.16c) is assumed given by

$$W^0_{0,0} = \frac{1}{4}(W^0_{1,0} + W^0_{-1,0} + W^0_{0,1} + W^0_{0,-1})$$

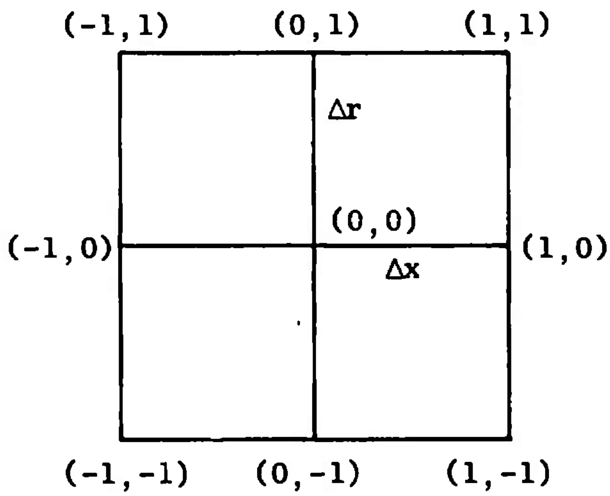
The second term in Eq. (2.16) can be replaced by spatial derivatives using the differential equation (2.11). In this way the following equations are obtained:

$$W^{1/2}_{\pm 1/2,0} = \frac{1}{2}(W^0_{0,0} + W^0_{\pm 1,0}) + \frac{\Delta t}{2}[-\langle F_x\rangle^0_{\pm 1/2,0} - \langle G_r\rangle^0_{\pm 1/2,0} + \langle H\rangle^0_{\pm 1/2,0}]$$

$$W^{1/2}_{0,\pm 1/2} = \frac{1}{2}(W^0_{0,0} + W^0_{0,\pm 1}) + \frac{\Delta t}{2}[-\langle F_x\rangle^0_{0,\pm 1/2} - \langle G_r\rangle^0_{0,\pm 1/2} + \langle H\rangle^0_{0,\pm 1/2}] \qquad (2.17)$$

$$W^{1/2}_{0,0} = \frac{1}{4}(W^0_{1,0} + W^0_{-1,0} + W^0_{0,1} + W^0_{0,-1}) + \frac{\Delta t}{2}[-\langle F_x\rangle^0_{0,0} - \langle G_r\rangle^0_{0,0} + H^0_{0,0}]$$

Now approximate the derivatives by difference quotients (refer to the sketch below):



Sketch Showing the Grid Points and the Values of Indices (m and n) around a Point (m = n = 0)

$$
\left.
\begin{aligned}
\langle F_x \rangle^0_{\pm\frac{1}{2},0} &= \pm \frac{1}{\Delta x}\left(F^0_{\pm 1,0} - F^0_{0,0}\right) \\
\langle G_r \rangle^0_{\pm\frac{1}{2},0} &= \frac{1}{2\Delta r}\left(\frac{G^0_{0,1} + G^0_{\pm 1,1}}{2} - \frac{G^0_{0,-1} + G^0_{\pm 1,-1}}{2}\right) \\
&= \frac{1}{4\Delta r}\left(G^0_{0,1} + G^0_{\pm 1,1} - G^0_{0,-1} - G^0_{\pm 1,-1}\right) \\
\langle F_x \rangle^0_{0,\pm\frac{1}{2}} &= \frac{1}{2\Delta x}\left(\frac{F^0_{1,0} + F^0_{1,\pm 1}}{2} - \frac{F^0_{-1,0} + F^0_{-1,\pm 1}}{2}\right) \\
&= \frac{1}{4\Delta x}\left(F^0_{1,0} + F^0_{1,\pm 1} - F^0_{-1,0} - F^0_{-1,\pm 1}\right) \\
\langle G_r \rangle^0_{0,\pm\frac{1}{2}} &= \pm \frac{1}{\Delta r}\left(G^0_{0,\pm 1} - G^0_{0,0}\right) \\
\langle F_x \rangle^0_{0,0} &= \frac{1}{2\Delta x}\left(F^0_{1,0} - F^0_{-1,0}\right) \\
\langle G_r \rangle^0_{0,0} &= \frac{1}{2\Delta r}\left(G^0_{0,1} - G^0_{0,-1}\right)
\end{aligned}
\right\} \qquad (2.18a)
$$

and

$$
\left.
\begin{aligned}
\langle H \rangle^0_{\pm\frac{1}{2},0} &= \frac{1}{2}\left(H^0_{0,0} + H^0_{\pm 1,0}\right) \\
\langle H \rangle^0_{0,\pm\frac{1}{2}} &= \frac{1}{2}\left(H^0_{0,0} + H^0_{0,\pm 1}\right)
\end{aligned}
\right\} \qquad (2.18b)
$$

Substituting Eqs. (2.18a) and (2.18b) into Eq. (2.17) gives

$$
\begin{aligned}
W^{\frac{1}{2}}_{\pm\frac{1}{2},0} = {} & \frac{1}{2}\left(W^0_{0,0} + W^0_{\pm 1,0}\right) \pm \frac{1}{2}\frac{\Delta t}{\Delta x}\left(F^0_{\pm 1,0} - F^0_{0,0}\right) - \frac{1}{8}\frac{\Delta t}{\Delta r}\left(G^0_{0,1} + G^0_{\pm 1,1} - G^0_{0,-1} - G^0_{\pm 1,-1}\right) \\
& + \frac{1}{4}\Delta t\left(H^0_{0,0} + H^0_{\pm 1,0}\right)
\end{aligned}
\qquad (2.19a)
$$

$$
\begin{aligned}
W^{\frac{1}{2}}_{0,\pm\frac{1}{2}} = {} & \frac{1}{2}\left(W^0_{0,0} + W^0_{0,\pm 1}\right) - \frac{1}{8}\frac{\Delta t}{\Delta x}\left(F^0_{1,0} + F^0_{1,\pm 1} - F^0_{-1,0} - F^0_{-1,\pm 1}\right) \pm \frac{1}{2}\frac{\Delta t}{\Delta r}\left(G^0_{0,\pm 1} - G^0_{0,0}\right) \\
& + \frac{1}{4}\Delta t\left(H^0_{0,0} + H^0_{0,\pm 1}\right)
\end{aligned}
\qquad (2.19b)
$$

$$
\begin{aligned}
W^{\frac{1}{2}}_{0,0} = {} & \frac{1}{4}\left(W^0_{1,0} + W^0_{-1,0} + W^0_{0,1} + W^0_{0,-1}\right) \\
& + \frac{\Delta t}{2}\left[-\frac{1}{2\Delta x}\left(F^0_{1,0} - F^0_{-1,0}\right) - \frac{1}{2\Delta r}\left(G^0_{0,1} - G^0_{0,-1}\right) + H^0_{0,0}\right]
\end{aligned}
\qquad (2.19c)
$$

Finally, writing Eqs. (2.15) and (2.19) in the notations previously defined gives

$$W(\ell+1,m,n) = W(\ell,m,n) + \Delta t\{-\frac{1}{\Delta x}[F(\ell+\frac{1}{2},m+\frac{1}{2},n) - F(\ell+\frac{1}{2},m-\frac{1}{2},n)]$$

$$-\frac{1}{\Delta r}[G(\ell+\frac{1}{2},m,n+\frac{1}{2}) - G(\ell+\frac{1}{2},m,n-\frac{1}{2})] + H(\ell+\frac{1}{2},m,n)\} \tag{2.20a}$$

$$W(\ell+\frac{1}{2},m\pm\frac{1}{2},n) = \frac{1}{2}[W(\ell,m,n) + W(\ell,m\pm1,n)] - \frac{1}{2}\Delta t\{\mp\frac{1}{\Delta x}[F(\ell,m\pm1,n) - F(\ell,m,n)]$$

$$-\frac{1}{4}\frac{1}{\Delta r}[G(\ell,m,n+1) + G(\ell,m\pm1,n+1) - G(\ell,m,n-1) - G(\ell,m\pm1,n-1)]$$

$$+\frac{1}{2}[H(\ell,m,n) + H(\ell,m\pm1,n)]\} \tag{2.20b}$$

$$W(\ell+\frac{1}{2},m,n\pm\frac{1}{2}) = \frac{1}{2}[W(\ell,m,n) + W(\ell,m,n\pm1)] + \frac{1}{2}\Delta t\{-\frac{1}{4}\frac{1}{\Delta x}[F(\ell,m+1,n) + F(\ell,m+1,n\pm1)$$

$$- F(\ell,m-1,n) - F(\ell,m-1,n\pm1)] \mp \frac{1}{\Delta r}[G(\ell,m,n\pm1) - G(\ell,m,n)]$$

$$+ \frac{1}{2}[H(\ell,m,n) + H(\ell,m,n\pm1)]\} \tag{2.20c}$$

and

$$W(\ell+\frac{1}{2},m,n) = \frac{1}{4}[W(\ell,m+1,n) + W(\ell,m-1,n) + W(\ell,m,n+1) + W(\ell,m,n-1)$$

$$+\frac{\Delta t}{2}\{-\frac{1}{2\Delta x}[F(\ell,m+1,n) - F(\ell,m-1,n)]$$

$$-\frac{1}{2\Delta r}[G(\ell,m,n+1) - G(\ell,m,n-1)] + H(\ell,m,n)\} \tag{2.20d}$$

SECTION III
COORDINATE TRANSFORMATION

In Section II, the conservation-law form (2.11) was written in cylindrical coordinates (x, r, and θ). The finite difference net in these coordinates will be a rectangular lattice. Therefore, on the nozzle wall boundaries, the lattice points will not fall on the wall curve. One way to eliminate this difficulty is to use a variable net size near the boundaries, but this would considerably complicate the finite difference scheme. Another solution is to use a coordinate transformation from x, r to x, y such that the wall shape is expressed as y = const.

This transformation can be accomplished in the following manner: Let s = s(x) be a function describing the nozzle shape. Consider the coordinate transformation:

$$(x,r) \rightarrow \left(x, y = \frac{r - s_i(x)}{s_o(x) - s_i(x)}\right) \tag{3.1}$$

Then,

$$\left.\begin{aligned} \left.\frac{\partial}{\partial x}\right|_r &= \left.\frac{\partial}{\partial x}\right|_y - \frac{[s_i' + y(s_o' - s_i')]}{s_o - s_i}\frac{\partial}{\partial y} \\ \frac{\partial}{\partial r} &= \frac{1}{(s_o - s_i)}\frac{\partial}{\partial y} \end{aligned}\right\} \tag{3.2}$$

Substituting into Eq. (2.11) gives

$$\frac{\partial}{\partial t} W + \frac{\partial}{\partial x} F(W) - \frac{[s_i' + y(s_o' - s_i')]}{s_o - s_i}\frac{\partial}{\partial y} F(W) + \frac{1}{(s_o - s_i)}\frac{\partial}{\partial y} G(W) = H(W) \tag{3.3}$$

It is seen from Eq. (3.1) that, in the x, y coordinate system, the wall shapes are expressed as

$$y_{wall} = \text{constant} \tag{3.4}$$

and, therefore, a constant value of y can be maintained throughout the entire field and the logic of the computer program considerably reduced.

Let $W^{\ell}_{m,n}$ represent $W(t + \Delta\ell,\ x + m\Delta x,\ y + n\Delta y)$ in the x, y system. Also let m = 1 be the nozzle inlet

m = M be the downstream boundary

n = 0 be the centerbody wall

n = N be the outer nozzle wall

Then the finite difference form of Eq. (3.1) becomes

$$\langle W_t\rangle^{1/2}_{0,0} = -\langle F_x\rangle^{1/2}_{0,0} + K_1\langle F_y\rangle^{1/2}_{0,0} - K_2\langle G_y\rangle^{1/2}_{0,0} + \langle H\rangle^{1/2}_{0,0} \tag{3.5}$$

where the terms within the brackets are given in (2.14b) with the understanding that Δr is replaced by Δy

and

$$K_1 = \frac{[s_i' + n\Delta y(s_o' - s_i')]}{s_o - s_i}$$

$$K_2 = \frac{1}{s_o - s_i}$$

With the coordinate transformation, Eq. (2.15) becomes

$$W^{1}_{0,0} = W^{0}_{0,0} + \Delta t\Big[-\frac{1}{\Delta x}\left(F^{1/2}_{1/2,0} - F^{1/2}_{-1/2,0}\right) + K_1\frac{1}{\Delta y}\left(F^{1/2}_{0,1/2} - F^{1/2}_{0,-1/2}\right) \tag{3.6}$$
$$-K_2\frac{1}{\Delta y}\left(G^{1/2}_{0,1/2} - G^{1/2}_{0,-1/2}\right) + H^{1/2}_{0,0}\Big]$$

and Eq. (2.19) becomes

$$W^{1/2}_{\pm 1/2,0} = \frac{1}{2}\left(W^{0}_{0,0} + W^{0}_{\pm 1,0}\right) \mp \frac{1}{2}\frac{\Delta t}{\Delta x}\left(F^{0}_{\pm 1,0} - F^{0}_{0,0}\right) + K_1\frac{\Delta t}{8\Delta y}\left(F^{0}_{0,1} + F^{0}_{\pm 1,1} - F^{0}_{0,-1} - F^{0}_{\pm 1,1}\right)$$
$$-K_2\frac{\Delta t}{8\Delta y}\left(G^{0}_{0,1} + G^{0}_{\pm 1,1} - G^{0}_{0,-1} - G^{0}_{\pm 1,-1}\right) + \frac{1}{4}\Delta t\left(H^{0}_{0,0} + H^{0}_{\pm 1,0}\right) \tag{3.7a}$$

$$W^{1/2}_{0,\pm 1/2} = \frac{1}{2}\left(W^{0}_{0,0} + W^{0}_{0,\pm 1}\right) - \frac{\Delta t}{8\Delta x}\left(F^{0}_{1,0} + F^{0}_{1,\pm 1} - F^{0}_{-1,0} - F^{0}_{-1,\pm 1}\right) + \frac{K_1}{2}\frac{\Delta t}{\Delta y}\left(F^{0}_{0,\pm 1} - F^{0}_{0,0}\right)$$
$$-\frac{1}{2}K_2\frac{\Delta t}{\Delta y}\left(G^{0}_{0,\pm 1} - G^{0}_{0,0}\right) + \frac{1}{4}\Delta t\left(H^{0}_{0,0} + H^{0}_{0,\pm 1}\right) \tag{3.7b}$$

$$W^{1/2}_{0,0} = \frac{1}{4}\left(W^{0}_{1,0} + W^{0}_{-1,0} + W^{0}_{0,1} + W^{0}_{0,-1}\right) + \frac{\Delta t}{2}\Big[-\frac{1}{2\Delta x}\left(F^{0}_{1,0} - F^{0}_{-1,0}\right) + \frac{K_1}{2\Delta y}\left(F^{0}_{0,1} - F^{0}_{0,-1}\right)$$
$$-\frac{1}{2}\frac{K_2}{\Delta y}\left(G^{0}_{0,1} - G^{0}_{0,-1}\right) + H^{0}_{0,0}\Big] \tag{3.7c}$$

The differencing scheme consists of the following two steps:

1. Calculate $W^{1/2}_{\pm 1/2,\,0}$, $W^{1/2}_{0,\,\pm 1/2}$, and $W^{1/2}_{0,\,0}$ using Eq. (3.7). From these results, evaluate $F^{1/2}_{\pm 1/2,\,0}$, $G^{1/2}_{0,\,\pm 1/2}$, and $H^{1/2}_{0,\,0}$ using the algebraic relations (2.13a) and (2.13b).
2. Introduce these functions together with $W^{0}_{0,\,0}$ into Eq. (3.6) to obtain $W^{1}_{0,\,0}$.

Examination of these steps reveals that the calculation of the components W_i at a point (m, n) on a time level $\ell + 1$ required the components W_i at the points

$$(m,n)\ ,\ (m \pm 1,n)\ ,\ (m,n \pm 1)\ ,\ (m \pm 1,n \pm 1)$$

on the time level ℓ. That is, in order to calculate a new vector W at a point (m, n) on the time level $\ell + 1$, the values at point (m, n) and its eight nearest surrounding grid points on time level ℓ are required. Therefore, the scheme represents a 9-point forward difference scheme.

The above explanation shows that for every new time cycle the scheme cannot furnish values at the mesh points lying on the boundaries of the region where the flow is desired. As in all problems, these values must come from boundary conditions imposed on the flow.

SECTION IV
BOUNDARY CONDITIONS

4.1 WALL BOUNDARIES

The values of W_i's at the walls of the nozzle can be obtained from consideration that certain wall boundary conditions must be satisfied at steady state.

For the case of no swirl (i.e., $W_4 = 0$), Eqs. (2.1b) and (2.1c) can be solved for the pressure gradient normal to the nozzle walls. Rewriting Eqs. (2.1b) and (2.1c) for $W_4 = 0$ gives, respectively,

$$\frac{\partial}{\partial t} u + u\frac{\partial u}{\partial x} + v\frac{\partial u}{\partial r} + \frac{1}{\rho}\frac{\partial P}{\partial x} = 0 \qquad (4.1)$$

$$\frac{\partial}{\partial t} v + u\frac{\partial v}{\partial x} + v\frac{\partial v}{\partial r} + \frac{1}{\rho}\frac{\partial P}{\partial r} = 0 \qquad (4.2)$$

By making the coordinate transformation and noting that at the wall, Eq. (3.2) is given by

$$\left.\begin{aligned} \left.\frac{\partial}{\partial x}\right|_r &= \left.\frac{\partial}{\partial x}\right|_y - \frac{s'}{s_o - s_i}\frac{\partial}{\partial y} \\ &\text{and} \\ \frac{\partial}{\partial r} &= \frac{1}{s_o - s_i}\frac{\partial}{\partial y} \end{aligned}\right\} \qquad (4.3)$$

then Eqs. (4.1) and (4.2) become, respectively,

$$\frac{\partial u}{\partial t} + u\left[\frac{\partial u}{\partial x} - \frac{s'}{(s_o - s_i)}\frac{\partial u}{\partial y}\right] + \frac{v}{(s_o - s_i)}\frac{\partial u}{\partial y} + \frac{1}{\rho}\left[\frac{\partial P}{\partial x} - \frac{s'}{(s_o - s_i)}\frac{\partial P}{\partial y}\right] = 0 \qquad (4.4)$$

$$\frac{\partial v}{\partial t} - u\left[\frac{\partial v}{\partial x} - \frac{s'}{(s_o - s_i)}\frac{\partial v}{\partial y}\right] + \frac{v}{(s_o - s_i)}\frac{\partial v}{\partial y} + \frac{1}{\rho(s_o - s_i)}\frac{\partial P}{\partial y} = 0 \tag{4.5}$$

However, at the walls, $s = \frac{v}{u}$, and $v = u \tan\theta$; therefore, Eqs. (4.4) and (4.5) can be written, respectively, as

$$\frac{\partial u}{\partial t} + u\frac{\partial u}{\partial x} + \frac{1}{\rho}\left[\frac{\partial P}{\partial x} - \frac{s'}{(s_o - s_i)}\frac{\partial P}{\partial y}\right] = 0 \tag{4.6}$$

and

$$\tan\theta\frac{\partial u}{\partial t} + u\tan\theta\frac{\partial u}{\partial x} + u^2\sec^2\theta\frac{\partial\theta}{\partial x} + \frac{1}{\rho(s_o - s_i)}\frac{\partial P}{\partial y} = 0 \tag{4.7}$$

Eliminating $\frac{\partial}{\partial t}u$ from Eqs. (4.6) and (4.7) gives

$$\frac{\partial}{\partial y}P = \frac{1}{2}\sin 2\theta_w(s_o - s_i)\frac{\partial}{\partial x}P - \rho u^2(s_o - s_i)\frac{\partial}{\partial x}\theta_w \tag{4.8}$$

Equation (4.8) can be written in finite difference form and used to evaluate the static pressure on both the nozzle outer wall and center-body. In order to define all of the variables on the boundaries, one more flow property must be calculated. Since the flow is inviscid and only the steady-state solution is of interest, the following isentropic relation can be used to solve for static temperature.

$$\frac{P_o}{P} = \left(\frac{T_o}{T}\right)^{a/R_g}\left[\frac{e^{\left(bT_o + \frac{c}{2}T_o^2\right)}}{e^{\left(bT + \frac{c}{2}T^2\right)}}\right]^{1/R_g} \tag{4.9}$$

The density is given by

$$\rho = \frac{P}{R_g T} \tag{4.10}$$

The velocity is given by

$$V = \left[2a(T_o - T) + b(T_o^2 - T^2) + \frac{2}{3}c(T_o^3 - T^3)\right]^{1/2} \tag{4.11}$$

where

$$u = V\cos\theta \tag{4.12}$$

and

$$v = V \sin \theta \tag{4.13}$$

Hence, Eqs. (4.8) through (4.13) supply the wall boundary values.

The present analysis assumes that there is always a centerbody present. For nozzles without a centerbody, s_i can be made small with respect to the outer wall (i.e., $s_i < 0.01 s_o^*$).

It should be noted that if Eq. (4.9) were applied along interior flow field streamlines, the energy equation (2.1e) could be eliminated entirely from the present solution. Elimination of the energy equation would reduce the computation time and should improve the numerical stability. However, with the energy equation, the present computer program can easily be extended to transfer of energy between streamlines.

4.2 DOWNSTREAM BOUNDARY CONDITION (CHOKED FLOW)

A coordinate line x = constant and m = M is chosen as the downstream boundary several grid stations downstream of the sonic line. In the case of a simple convergent conical nozzle, this may be done by initially assuming that the nozzle after the exit is extended through a short rounded throat section and a short divergent conical diffuser. Since the flow is entirely supersonic, no errors will be generated upstream from this end line. A linear extrapolation will be sufficient to obtain flow properties at the downstream boundary. The extrapolation formula used is

$$P_M = 2P_{M-1} - P_{M-2}$$

4.3 DOWNSTREAM BOUNDARY CONDITION (UNCHOKED FLOW)

For subsonic flow, the radial distribution of static pressure and flow angle at the downstream boundary are input. From these two properties, all other flow variables can be defined. In reality, defining the downstream distribution over specifies the problem and, therefore, the input distribution must be reasonably correct. It is planned in the near future to investigate using a linear extrapolation of flow properties similar to the one used for choked flow at the downstream boundary. It must be determined if an extrapolated downstream boundary will converge to a reasonable distribution with time.

4.4 UPSTREAM BOUNDARY CONDITIONS

A coordinate line x = constant at m = 1 is chosen as the upstream boundary. The inputs are the radial distribution of stagnation pressure, stagnation temperature, mass-weighted gas composition, and normalized static pressure. The static pressure can be normalized by either the outer or inner wall static pressure.

4.5 FREE-JET EXPANSION (CHOKED)

To caluclate the flow field for a convergent nozzle exhausting to a prescribed pressure field, the free-jet portion of the outer contour is adjusted with time until the prescribed and calculated pressures on the boundary agree. The free boundary contour is adjusted with the following expression:

$$\theta_{new} = \theta_{old} - \frac{1}{2}\frac{(P_{old} - P_{new})}{(\rho V^2)_{old}}(|M^2_{old} - 1|)^{1/2} \tag{4.15}$$

The absolute value of M^2-1 is used so that Eq. (4.15) will also apply for slightly subsonic flow (i.e., M > 0.9). If the nozzle exit radius and the new axial distribution of flow angle are known, a new free boundary contour is caluclated from

$$s_o = \sum_{i=s_{exit}}^{i} (s_o)_i + \Delta x \tan \frac{(\theta_o)_i - (\theta_o)_{i+1}}{2} \tag{4.16}$$

By using this subroutine, the computer program is restarted until the specified and calculated pressures agree within some preselected tolerance.

4.6 INITIAL FLOW PARAMETERS

As previously stated, to calculate the components W_i at time level $\ell + 1$ requires the components W_i at time level ℓ. The steady-state solution is independent of the path; however, the prescribed initial flow field does have some influence on the time required to reach steady state. The present solution is initiated from a pseudo one-dimensional flow field. To establish the initial flow field, it is assumed that all flow properties are independent of axial distance (x), or

$$P_o(x,r) = P_o\Big|_{m=1}\left(\frac{r-s_i}{s_o-s_i}\right) \tag{4.17}$$

$$T_o(x,r) = T_o\Big|_{m=1}\left(\frac{r-s_i}{s_o-s_i}\right) \tag{4.18}$$

$$c_P(x,r) = c_P\Big|_{m=1}\left(\frac{r-s_i}{s_o-s_i}\right) \tag{4.19}$$

$$\frac{P}{P_w}(x,r) = \frac{P}{P_w}\Big|_{m=1}\left(\frac{r-s_i}{s_o-s_i}\right) \tag{4.20}$$

The local flow angle is assumed to vary linearly with radius, or

$$\theta_{local} = \theta_i + (\theta_o - \theta_i)\frac{r-s_i}{s_o-s_i} \tag{4.21}$$

For choked flow, it is necessary to maximize the weight flow to ensure that the flow downstream of the throat is supersonic, or

$$\dot{W}^*_{F\ 1-D} = 2\pi P \int_{s_i^*}^{s_o^*} \frac{u}{R_g T} \, r dr \tag{4.22}$$

where T can be evaluated from Eq. (4.9) and u from Eq. (4.12). For the case of radial nonuniformities of stagnation properties, values of P are assumed until $W^*_{F\ 1-D}$ is a maximum. The value of P at each axial station is found by iterating on P to satisfy the throat mass flow. Since the static pressure is initially assumed constant, this start procedure will not work for nozzles having large convergence angles (i.e., $\gtrsim 50$ deg) since for this case one-dimensional flow is a poor assumption.

4.7 TIME STEP

The finite differencing scheme used in this report is conditionally stable. Stability can usually be achieved if the spatial and time intervals satisfy the following condition:

$$\frac{\Delta t}{\Delta} \approx \frac{(M_{max} + 1)^{-1}}{3u^*_{max}} \tag{4.23}$$

where Δ is the smaller of Δx or Δy. Large numerical instabilities are readily apparent when negative or large oscillations of pressure are observed in the output for the higher Mach number regions of the nozzle. When this condition is encountered, a smaller time step should

be used and the calculations restarted from time zero. Oscillations in the numerical results can be limited by use of finer mesh size and possibly sometimes by a reduced time step. In general, however, it has been found to be desirable to maintain the largest time step consistent with numerical stability. Numerical oscillations less than one percent in pressure ratio ($P_{local}/P_{stagnation}$) are considered acceptable.

4.8 SPECIAL PROGRAM RESTRAINTS

In calculating various flow fields with the present set of equations, it was found necessary to add some programming restraints. These numerical restirctions could possibly be avoided if adequate computer storage were available so that the variation of flow properties both with time and across grid points could be kept small. These restraints are, (1) smoothing the nozzle density profiles, and (2) maintaining the radial distribution of the flow angle monotonic in the subsonic portion of the nozzle.

The density smoothing process consists of applying a weighting factor (a weighting factor of four is generally used) to the local value of density and then linearly smoothing with the surrounding values of density. All other variables are then recalculated to correspond to the smoothed density distribution. This smoothing process has an effect similar to adding a dampening factor to the numerical procedure to increase the apparent viscosity term. Such factors do not disappear at steady state; however, an analytical investigation of varying the value of the weighting factor and a comparison with experimental data revealed that the smoothing process has no significant influence on the accuracy of the results. Some influence may be felt at a point where the flow is being rapidly expanded.

The flow angle restraint subroutine is optional and is generally only required when there are insufficient grid points to adequately describe the geometry and inlet flow variations. This subroutine ensures that the flow angle is radially monotonic in the inlet region of the nozzle when the flow angle is known to be monotonic such as on a conical convergent nozzle (see sample calculations).

There is also a restriction on the minimum flow Mach number ($\sim$0.1 to 0.2), and any calculated value less than this minimum value

is reset to the minimum value. Therefore, flow fields where expected Mach numbers are less than (0.1 to 0.2) should not be attempted.

SECTION V
GENERAL PROGRAM INFORMATION

5.1 PROGRAM INPUTS

In order to make a nozzle calculation, the information required is the nozzle and centerbody radial coordinates and slope, radial distribution of total pressure, total temperature, and gas composition, and the normalized radial distribution of static pressure all at the nozzle inlet plane. For the case of an unchoked nozzle, the radial distribution of normalized static pressure and absolute values for the flow angle at the downstream boundary must also be specified. For convergent nozzles the nozzle ambient pressure or ambient pressure distribution must be specified. Appendix II gives the detailed information required to make up the input card deck.

5.2 PROGRAM OUTPUTS

In general, the program prints all the flow parameters at each grid point; that is density, axial and radial velocity, static pressure and temperature, flow angle, and Mach number. In addition the mass flow and axial thrust at each axial station are tabulated. Appendix III gives the specific printouts.

SECTION VI
SAMPLE CALCULATIONS

To illustrate capabilities of the computer program, sample calculations for three basic turbine engine exhaust nozzle configurations are presented: (1) choked convergent-divergent, (2) choked unshrouded plug, and (3) unchoked convergent-divergent.

6.1 CHOKED CONVERGENT-DIVERGENT NOZZLE

A schematic of the nozzle geometry is presented in Fig. 1 (Appendix I). The flow stagnation conditions at the nozzle inlet are presented

in Fig. 2. The card format sheets for the program inputs are presented in Appendix IV. First, it should be mentioned that the nozzle was started at an inlet radius of 2.714 in. rather than 3.605 in. It has been found that for choked nozzles the flow conditions at the inlet region for Mach numbers less than ~0.3 have no apparent effect on flow conditions at the throat plane. By limiting the region of interest, a finer grid network can be obtained in the region of the nozzle throat. Second, it should be noted that the nozzle wall forms an apex at the throat plane (the wall slope instantaneously changes from -0.44 to 0.0267). Since only a single value of wall slope can be specified, the average slope (-0.20664 for the present case) is used. A comparison of experimental (Ref. 7) and theoretical wall pressures is presented in Fig. 3. The complete printout is presented in Appendix V. In general, the calculated wall static pressure distribution agrees quite well with experiment. The same is true of the theoretical and experimental thrust and discharge coefficients. In calculating the nozzle performance coefficients, a first order boundary layer correction was applied to the inviscid flow field results. The computer program used for the boundary layer correction is described in Ref. 8.

As the results demonstrate, the present analysis can be used for supersonic flow. This is only true as long as there are no strong shocks present. It is much more expedient, however, to use the rotational method of characteristics for the supersonic flow regime.

6.2 PLUG NOZZLE (UNSHROUDED)

A schematic of the nozzle geometry is presented in Fig. 4. The flow stagnation conditions at the nozzle inlet are presented in Fig. 5. The card format sheets for the program inputs are presented in Appendix IV. Here again, because of the low inlet Mach number, the flow field was started at an outer radius of 3.31R rather than 3.605R. The first guess on the free-stream portion of the outer flow field boundary is a divergent conical section. Three program restarts were used to obtain the specified pressure (960 ± 40 psfa) along the free streamline. A comparison of experimental (Ref. 7) and theoretical[2] wall pressures is presented in Fig. 6. For this caluclation, the supersonic portion of

[2]This calculation was made using an earlier subroutine which extrapolated internal flow conditions to obtain wall conditions. The results obtained using this subroutine should closely agree with the results obtained from the present program.

the flow was obtained from the rotational method of characteristics. Except for the aft end of the plug, the calculated and experimental pressures agree quite well. This discrepancy in plug pressure is attributed to flow separation caused by the shock which originates from the flow expansion process at the cowl exit plane. The present calculation assumes that the flow remains attached to the plug. In calculating the nozzle performance coefficients, a first-order boundary layer correction (Ref. 8) was applied to the inviscid flow field results.

When using the free-jet subroutine, some caution is required. First, Eqs. (4.15) and (4.17) assume close agreement between the old and the new values for the boundary pressure. For example, if the calculated pressure ratio at a point is 5.0 and the target pressure is 2.5, it is best to reduce the boundary pressure in several increments (i.e., 5-4, 4-3, 4-3, 3-2.5) rather than in one step (i.e., 5-2.5). Second, for nozzle geometries having large flow expansions the numerical calculations cannot adjust in one grid point. For example, a 40-deg sharp lip convergent nozzle expanding to a pressure ratio greater than 4 can require one and possibly two grid points to make the transition from the last wall pressure to the value for the free-stream pressure.

Nozzle flow separation is another condition frequently encountered. Evaluation of nozzle separation pressure is a function of the particular nozzle geometry and boundary layer characteristics. In lieu of better information, there is some experimental evidence for convergent conical nozzles having small throat radius of curvatures that flow separation will occur when the wall pressure is approximately 0.85 of the free-stream pressure. Therefore, in making a convergent nozzle calculation, it is assumed that the nozzle flow remains attached to the wall if the wall pressure is ≥ 0.85 of the external pressure. If the wall pressure is <0.85 of the external pressure, it is assumed that the flow will separate from the wall and readjust through a weak compression back to the nozzle external pressure. The free-jet subroutine is used to solve the separated portion of the nozzle flow.

6.3 UNCHOKED CONVERGENT-DIVERGENT NOZZLE

The nozzle configuration for this calculation consisted of a circular arc nozzle inlet and throat which merges into a 6-deg half-angle divergent conical section. The flow stagnation conditions at the nozzle inlet are presented in Fig. 7. The card format sheets for the program inputs are presented in Appendix IV. At the nozzle exit plane, a linear

radial variation of flow angle was used and a radial variation of static pressure profile was assumed. The radial distribution of composition was estimated by assuming complete combustion for the local values of fuel and air ratio from Fig. 7. In making this calculation, the flow angle restraint was used for the entire flow field. The first calculation made without the flow angle restraint exhibited some flow divergence near the nozzle centerline. The final plot from the program plot routine is shown in Fig. 8. This plot presents the nozzle geometry and lines of constant static pressure. The blip in the static pressure profile near r = 2.5 is attributed to the dip in the total temperature radial profile and the rapid decrease in fuel-air ratio at this radial position.

SECTION VII
SUMMARY

An analytical method and computer program has been presented which is capable of predicting the flow field and performance coefficients for axisymmetric exhaust nozzles representative of turbine engines. To make a calculation for choked nozzle flow, the description of the nozzle geometry and the radial distribution of flow stagnation conditions is required. To make a calculation for choked nozzle flow, a description of the nozzle geometry, radial distribution of flow stagnation conditions, and downstream radial distribution of flow angle and normalized static pressure is required. The magnitude of the radial variation in stagnation conditions which can be handled by this computer program will be a function of the available mesh size and nozzle configuration. This factor can be determined with operating experience for the individual computer.

The computer program in its present state is capable of calculating the inviscid flow field for most nozzles of practical interest. With some modification, additional nozzle configurations could be considered. For instance, the free-jet boundary subroutine can be used on the nozzle centerbody surface for truncated plug nozzles. Also, the case of two intersecting jets could be solved simultaneously by alternately matching the pressure along the jet interface. This case could be representative of ejector nozzles which have a step profile in stagnation conditions providing, of course, viscous effects do not predominate the flow field. Any gas composition can be calculated as long as the specific heat-temperature relation is expressed as a second-order polynominal.

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APPENDIXES

I. ILLUSTRATIONS
II. PROGRAM INPUT CARDS
III. PROGRAM PRINTOUT
IV. CARD FORMAT SHEETS FOR SAMPLE CASES
V. SAMPLE PRINTOUT FOR C-D NOZZLE
VI. COMPUTER LISTING

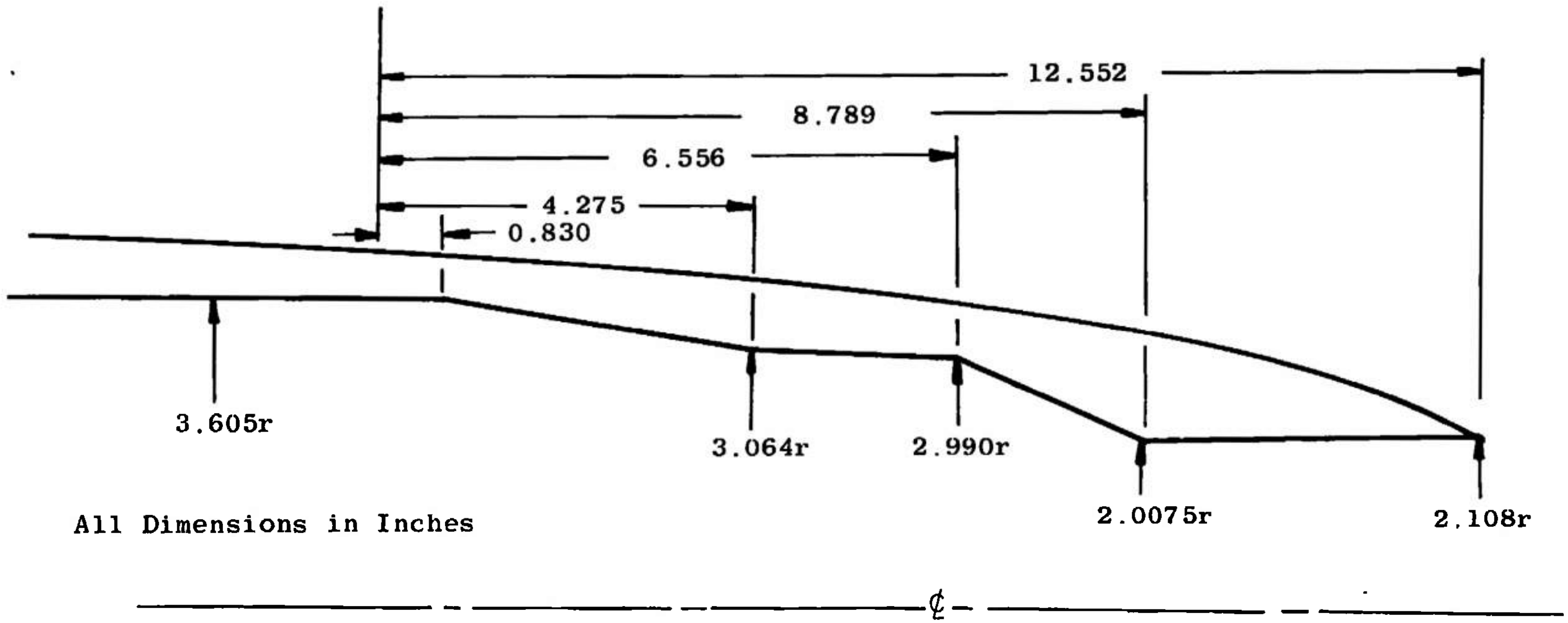

Fig. 1 Convergent-Divergent (C-D) Nozzle Configuration

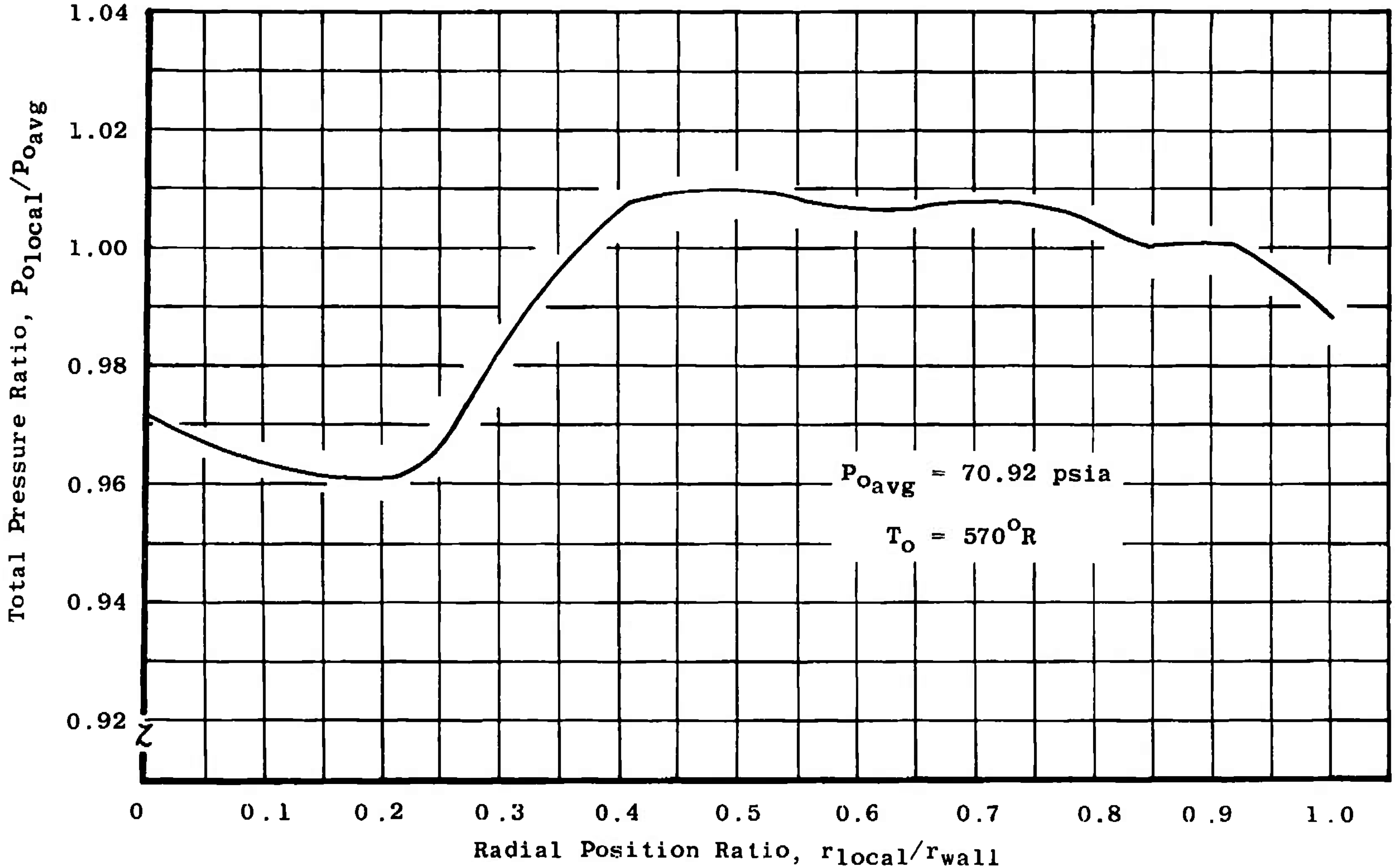

Fig. 2 C-D Nozzle Inlet Radial Total Pressure Distribution

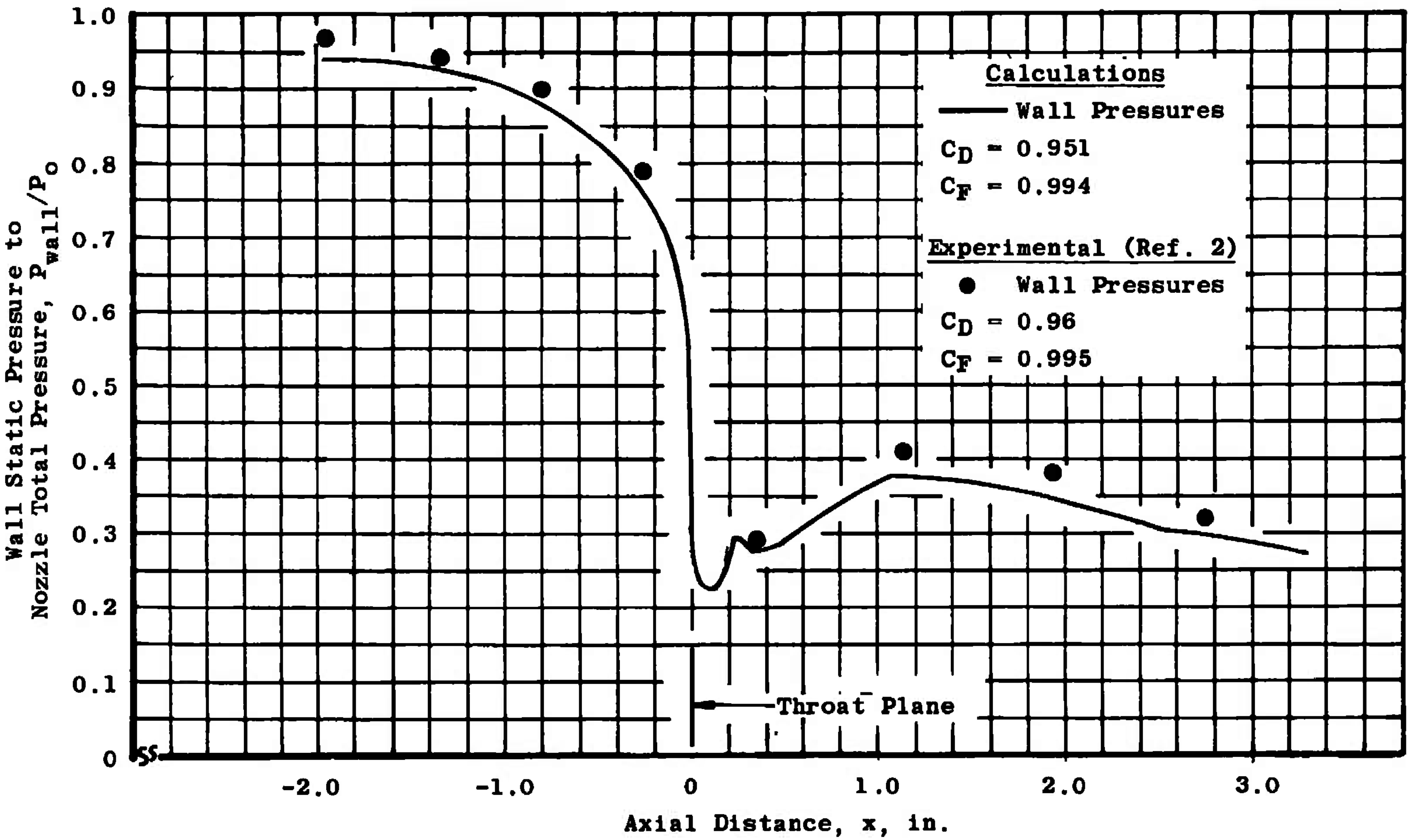

Fig. 3 C-D Nozzle Wall Pressure Profile

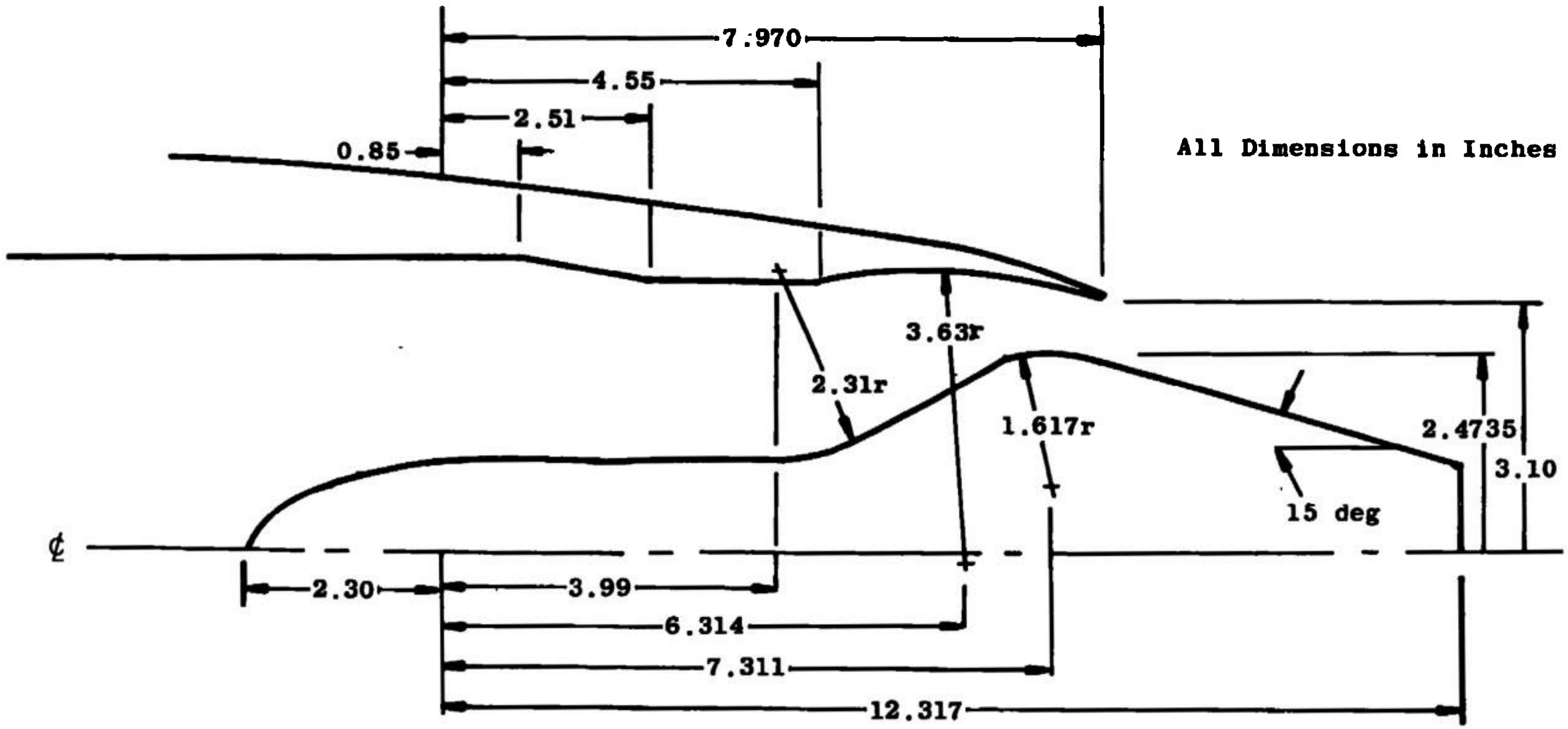

Fig. 4 Unshrouded Plug Nozzle Configuration

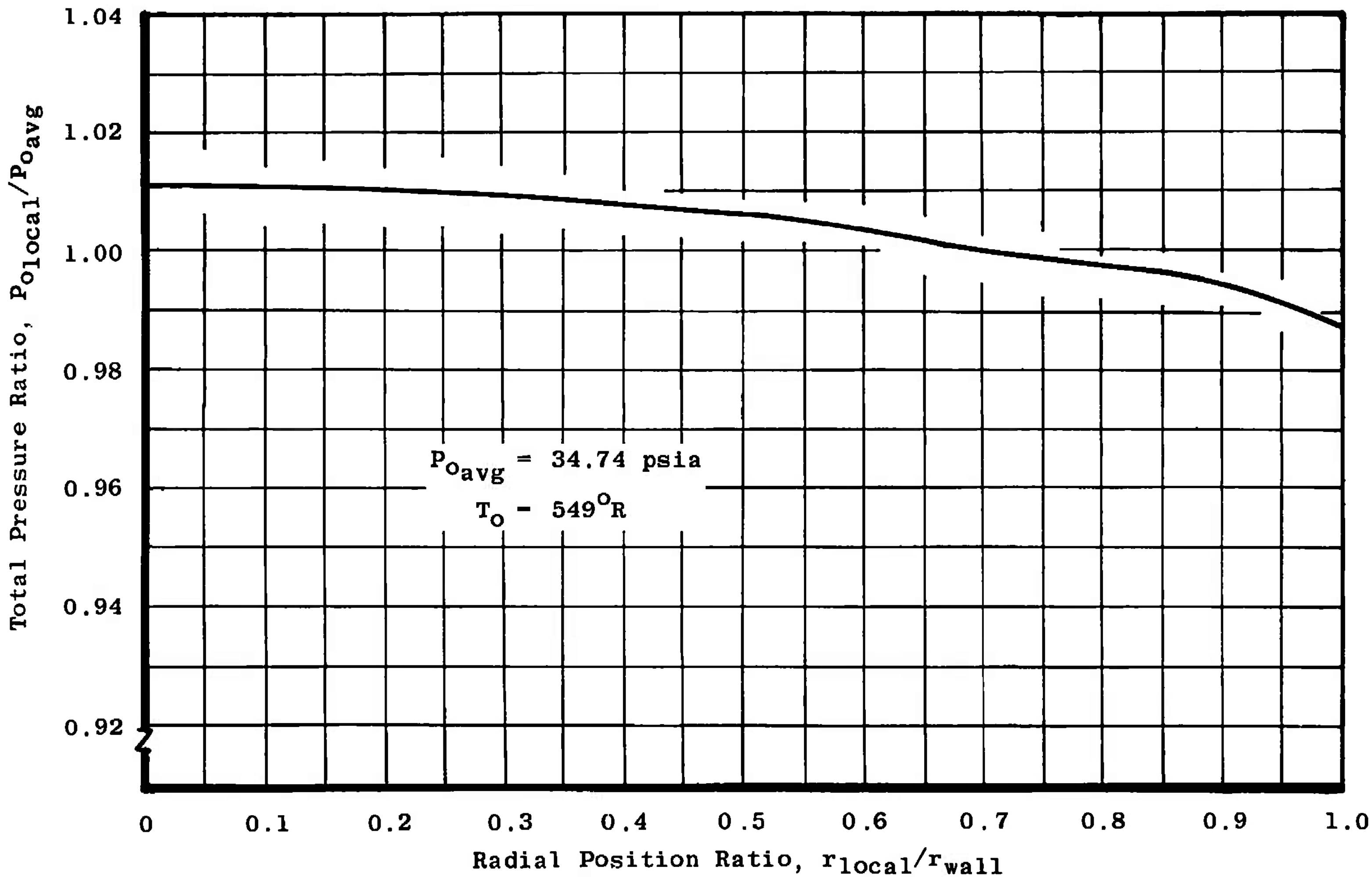

Fig. 5 Unshrouded Nozzle Inlet Radial Total Pressure Distribution

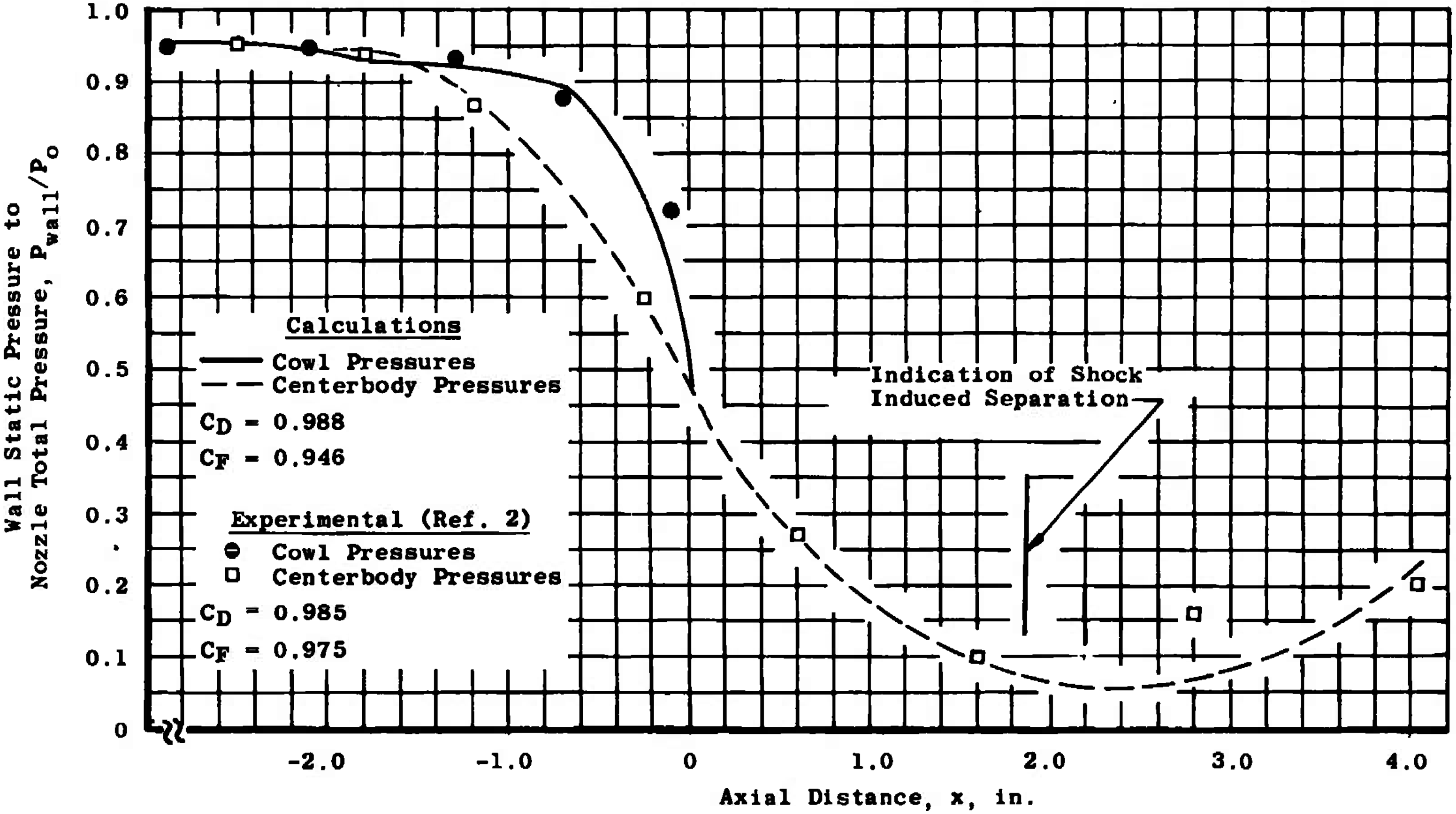

Fig. 6 Unshrouded Nozzle Wall Pressure Profile

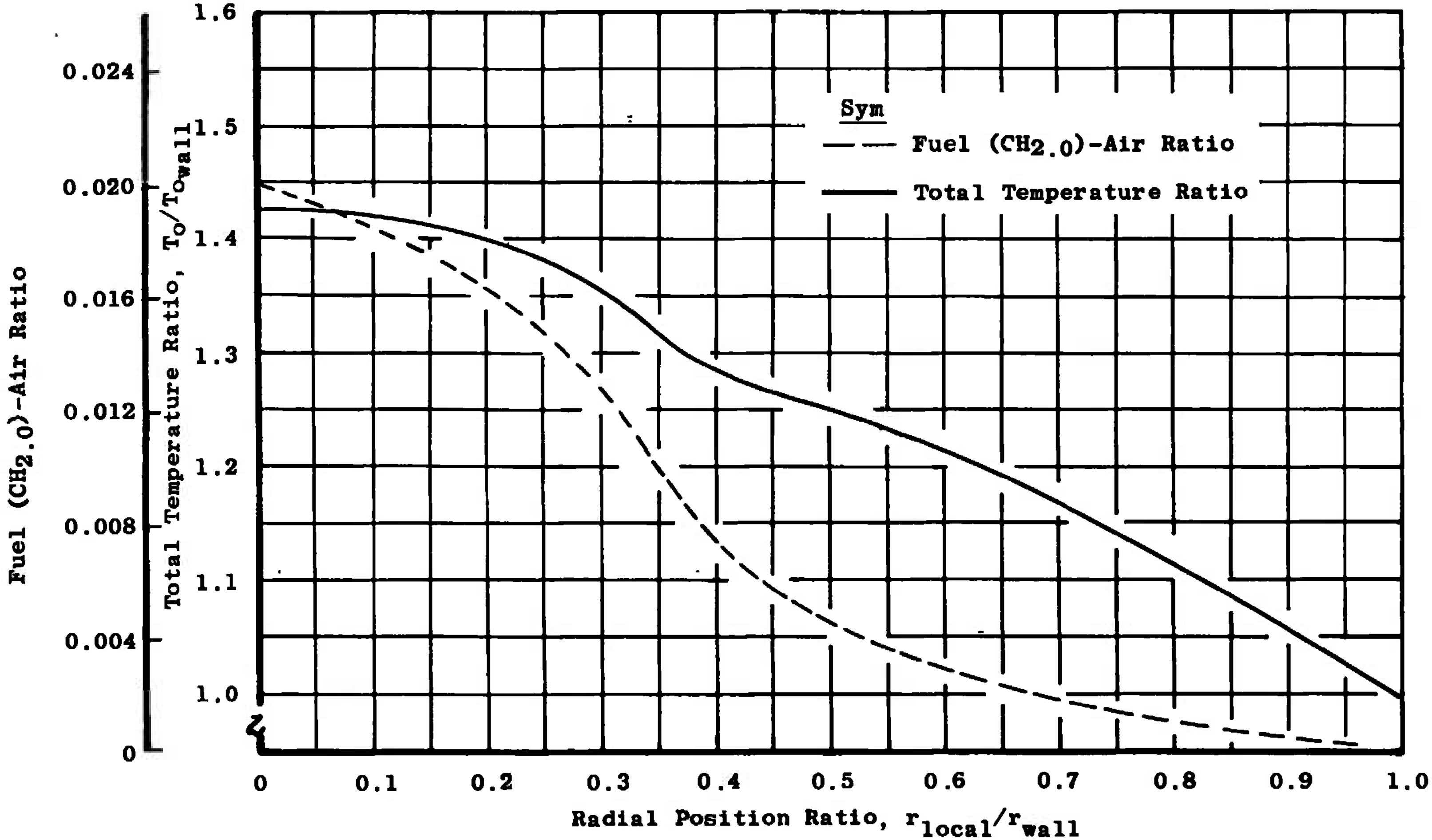

Fig. 7 C-D Nozzle Inlet Radial Profile Distribution of Inlet Temperature and Fuel-Air Ratio

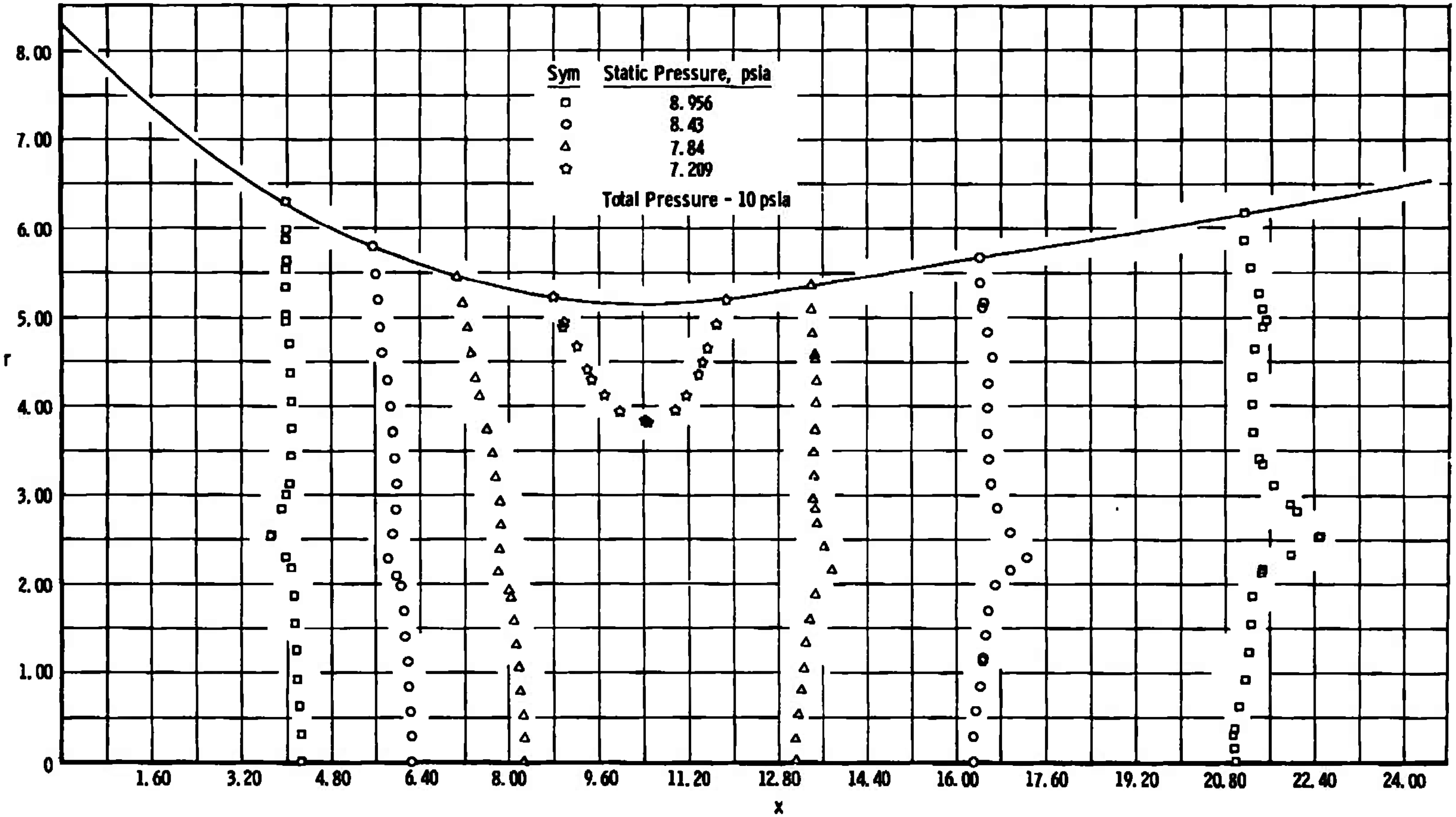

Fig. 8 Isobars for Subsonic Flow in a C-D Nozzle

APPENDIX II
PROGRAM INPUT CARDS

Card 1 - Identification Card

Cols. 1-4, 1- **

Cols. 5-80, Title identification

Card 2

This card specifies the number of times printed and the number of cycles per output. For instance, 3 and 50 means that the flow field will print out every 50 iterations for a total of 150 iterations.

Cols. 1-5, Number of times printed (I-5 format)

Cols. 6-10, Number of cycles per output (I-5 format)

Cols. 11-15, any positive number in this space indicates a restart of the flow field, for instance, in going from 150 to 300 iterations. If these columns are left blank, it indicates that a new case is being started. Any negative number in this space indicates a new free-jet boundary is to be evaluated before the calculations are continued.

Additional Cards for Free-Jet Subroutines

These cards are used only if there is a negative number in Columns 11-15, Card 2.

Additional Card 1

Cols. 1-5, First X station for free pressure reset (I-5 format)

Cols. 5-10, Last X station for free pressure reset (I-5 format)

Cols. 11-20, Downstream pressure control (psfa) (E-10 format)

The downstream pressure control is used only for the choked nozzle program. The purpose of this control is to prevent the downstream boundary from becoming subsonic. The magnitude of the control

pressure should be approximately equal to the static pressure value for sonic flow on the axis.

Additional Card 2

These cards contain the desired pressure ratio ($P_{stagnation}/P_{static}$) (E-10 format) at each X station. The pressure ratios must be input in consecutive order from upstream to downstream and the number of input pressure ratios must correspond to the number of X stations implied on additional card 1. If the pressure is constant with X, then the pressure ratio should be input as a negative number in Cols. 1-10 (E-10 format).

This is the end of the additional cards.

Card 3 and 4

These two cards specify the lines of constant static pressure to be used in a plot subroutine. Pressure should be input in psia. A total of 16 pressures can be input (E-10 format).

Card 5

This card is for the density smoothing or weighting factors. A

$$\begin{array}{c} 1 \\ | \\ 1-4-1 \\ | \\ 1 \end{array}$$

weighting distribution has generally been used. These factors can be varied to determine if they are influencing the results. As long as the gradients in the flow field are fairly locally uniform (about a point), no significant influence has been found.

Cols. 1-5, upper factor, (i.e., 1) (I-5 format)

Cols. 6-10, lower factor, (i.e., 1) (I-5 format)

Cols. 11-15, left factor, (i.e., 1) (I-5 format)

Cols. 16-20, mid factor, (i.e., 4) (I-5 format)

Cols. 21-25, right factor, (i.e., 1) (I-5 format)

Card 6

Cols. 1-5, the number of y stations (I-5 format)

There are a minimum of 3 and a maximum of 21 stations available. More stations may be added by recompiling. Δy and Δx should be approximately equal at the throat.

Cols. 6-10, the number of x stations (I-5 format)

There are a maximum of 57 stations available. More stations may be added by recompiling.

Card 7

Cols. 1-12, Δx, ft (E-12 format)

Cols. 13-24, Δt sec (E-12 format)

Cards 8 $\longrightarrow$ N

These cards contain the nozzle geometry, and for a convergent nozzle, the first assumption on the coordinates for the free streamline. The number of geometry cards must be equal to the number of y stations in Cols. 6-10, Card 6, (4E15.0 format)

Cols. 1-15, value of y[3] (ft) for the outer nozzle wall

Cols. 16-30, value of tan θ for each y value on the outer nozzle wall

Cols. 31-45, value of y (ft) for the centerbody (for no centerbody let s_i centerbody be a very small number, for instance 0.001 s_o^*).

Cols. 46-60, value of tan θ which corresponds to centerbody y value (for no centerbody, tan θ = 0).

The values of y and tan θ are input in sequence starting at the nozzle inlet.

---

[3]Since single precision is used, y for the outer wall should not be less than 0.1. The nondimensional flow field is not affected by the units on y; only the relative values of x and y are important.

Card N + 1 Insert blank card

Card N + 2

This card is for the flow angle restraint. Leave this card blank and the subroutine is bypassed. For a conical nozzle having a sharp lip and without a centerbody the flow restraint may be used up to the nozzle exit plane. For a contoured nozzle or centerbody the flow restraint should be used up to the first geometry inflection point (refer to sample cases).

Cols. 1-5, axial (x) station for flow angle control (I-5 format)

Card N + 3

This card specifies whether the real or perfect gas subroutine is used. For real gas, cp is represented with a quadratic in temperature. The constants used for the cp-T relation have a temperature range from 400 to 2000°R. For temperatures greater than 2000°R, new constants are required. The perfect gas calculations drop the temperature coefficients on the quadratic. Perfect air is computed to have a specific heat ratio of 1.4.

Cols. 1-4, for perfect gas calculations, write PERF in Cols. 1-4.
For real gas calculations, write REAL in Cols. 1-4.

Card N + 4

This card indicates the number of radial stations for which flow properties will be input at the nozzle inlet plane. There is a minimum of 3 points that can be input. The flow conditions on the wall and centerbody or centerline must be two of the inputs.

Cols. 1-5, number of inputs (I-5 format)

Cards N + 5 → M

These cards specify the stagnation properties and gas properties radially across the nozzle inlet plane. The sequence of inputs is from the centerline to the nozzle wall.

Cols. 1-12, radial position

$$\left(\frac{r^2-s_i^2}{s_o^2-s_i^2}\right) \qquad \text{(E-12, Format)}$$

Cols. 13-24, stagnation pressure (psia) which corresponds to radial position. (E-12, format)

Cols. 25-36, stagnation temperature (°Rankine) which corresponds to radial position. (E-12 format)

Cols. 37-40, for information or identification. These columns may be left blank.

Cols. 41-45, Mass fraction of air (E-5 format)

Cols. 45-50, Mass fraction of carbon dioxide (E-5 format)

Cols. 51-55, Mass fraction of carbon monoxide (E-5 format)

Cols. 56-60, Mass fraction of water vapor (E-5 format)

Cols. 61-65, Mass fraction of oxygen (E-5 format)

Cols. 66-70, Mass fraction of nitrogen (E-5 format)

Cols. 71-75, Mass fraction of argon (E-5 format)

Cols. 76-80, Mass fraction of hydrogen (E-5 format)

If the total mass fraction does not add up to one, the individual mass fractions will be normalized by the total mass fraction.

Card M + 1

This card indicates the number of radial stations which will be used to specify the nozzle inlet static pressure profile. If a uniform profile is assumed, leave this card blank.

Cols. 1-5, number of radial stations (I-5 format)

Card M + 2 → L (for Choked Flow)

These cards specify the radial position and static pressure profile. The sequence of inputs is from the centerbody to the nozzle wall.

Cols. 1-12, radial position, $\left(\frac{r - s_i}{s_o - s_i}\right)$ (E-12 format)

Cols. 13-24, ratio of local static pressure to either the centerbody or wall static pressure (E-12 format).

Card M + 2 → L (for Unchoked Flow)

Providing card M + 1 is not blank, these cards specify the radial position and static pressure profile. The sequence of inputs is from the centerbody to the nozzle wall.

Cols. 1-12, radial position, $\left(\frac{r - s_i}{s_o - s_i}\right)$ (E-12 format)

Cols. 13-24, ratio of local static pressure to either the centerbody or wall static pressure (E-12 format).

If card M + 1 is blank, then card M + 2 indicates the number of radial stations which will be used to specify the exit plane profile. The following cards (M + 3 → · · ·) should contain the same information as specified above, that is, the exit plane radial position, static pressure profile, and in addition the tan θ profile (Cols. 25-36). If a uniform exit profile is assumed, leave this card blank.

Card L + 1 (for Unchoked Flow)

This card specifies the mean value of the static pressure at either the inlet or exit plane. For the inlet plane, use a positive value for static pressure. For the exit plane, use a negative value of static pressure.

Cols. 1-12, static pressure (psia) (E-12 format)

APPENDIX III
PROGRAM PRINTOUT

1. Nozzle Geometry - The nozzle coordinates, area, and slope are printed. A check should be made to see that the values of SO' and SI' agree closely with $\frac{DSO}{DX}$ and $\frac{DSI}{DX}$, respectively.

2. Gas Properties - The specific heat versus temperature for various components, molecular weight, and specific heat ratio versus radial position are printed.

3. Stagnation Conditions - The ratio of specific heats, enthalpy, speed of sound versus radial position are printed. Also, the minimum velocity is printed. The minimum velocity is the smallest value permitted to be used in the caluclations. A velocity, whose value is calculated to be less than the minimum, is reset to the minimum value.

4. Flow Field - The flow field is printed at each axial station for each time iteration specified to be printed. The first column of vertical numbers corresponds to the radial station, starting with the centerline or centerbody. The second vertical column (percent streamline) gives the percent of mass flow contained below this radial position. The third number (W_1) is the product of ρr. W_2 is the product of ρur. W_3 is the product of ρvr. W_4 is the product of the internal energy (e) and radius (r). The other printouts are self explanatory.

5. Nozzle Coefficients - The first vertical column (W_F) is the calculated weight flow (lbm/sec) at each axial station. The second vertical column (W_f/W_f^*) is the ratio of the mass flow at each axial station to the mass flow at the throat axial station. If the ratio of W_f/W_f^* deviates significantly from unity at any one given axial station, this is an indication that more grid points are required at this station. The next column VD is the value of the integral $2\pi \int_{s_i}^{s_o} \rho u^2 r dr$ at each axial station, and PD is the value of the integral $2\pi \int_{s_i}^{s_o} P r dr$ at each axial station. The last vertical column is the nozzle thrust (lbf) at each axial station.

6. Wall and Axis Flow Conditions - The flow conditions on the wall and axis are separately tabulated after the last flow field has been printed.

7. Plot Coordinates - The x, y coordinates for the isobars specified by Cards 3 and 4 are tabulated.

8. Convergence Criteria - This portion of the printout is used to determine when steady-state conditions are achieved. The first horizontal line gives the axial station for which the wall and axial pressure ratios are tabulated. The last vertical column is the time iteration. The computations should be continued until the variation in pressure with time is considered to be negligible; furthermore, the pressure field should go through at least one or two minimums. Numerical oscillations less than one percent in pressure ratio are considered acceptable. If the flow will not converge, the time step should be reduced and/or increase the number of grid points.

APPENDIX IV
PROGRAM INPUTS FOR SAMPLE CASES

CARD FORMAT

JOB TITLE Sample Case SHEET 1 OF ~~3~~ 4

PROJECT NO. C-D Nozzle PROGRAMMER

```
1 ** C-D NOZZLE, LOCKHEED CONFIG.
    11 300

   65.     60.     55.     50.     45.     40.     35.     30.
   25.     20.

     1      1      1   4   1
   21     50

 .100375          .00003
   2.71416          -.44          .0001                                         1

 ~~    ~~ 2.67                                                                   2
   2.6258                                                                        3

   2.5817                                                                        4
   2.5375                                                                        5

   2.4933                                                                        6
   2.4492                                                                        7

   2.4050                                                                        8
   2.3608                                                                        9

   2.3167                                                                       10
   2.2725                                                                       11
```

DE 2

CARD FORMAT

JOB TITLE Sample Case SHEET 2 OF ~~3~~ 4

PROJECT NO. C-D Nozzle PROGRAMMER

Cols 1–15	Cols 16–30	Cols 31–45	Cols 46–60	Cols 61–78	Cols 79–80
2.2284	-.44	.0001			12
2.1842					13
2.1400					14
2.0959					15
2.0517	-.44				16
2.0075	-.20664				17
2.01018	.0267074				18
2.01286					19
2.01554					20
2.01822					21
2.02090					22
2.02358					23
2.02627					24
2.02895					25
2.03163					26
2.03431					27
2.03699					28
2.03967					29

DE 2

CARD FORMAT

JOB TITLE Sample Case
PROJECT NO. C-D Nozzle
SHEET 3 OF ~~3~~ 4
PROGRAMMER

Columns 1–15	Columns 16–30	Columns 31–45	Card
2.04235	.0267074	.0001	30
2.04503			31
2.04771			32
2.05039			33
2.05307			34
2.05575			35
2.05843			36
2.06112			37
2.06380			38
2.06648			39
2.06916			40
2.07184			41
2.07452			42
2.0772			43
2.07989			44
2.08257			45
2.08525			46
2.08793			47

CARD FORMAT

JOB TITLE Sample Case SHEET 4 OF 4

PROJECT NO. C-D Nozzle PROGRAMMER

Cols. 1–12	Cols. 13–24	Cols. 25–36	Cols. 37–48	Cols. 79–80
2.09061	.0267074	.0001		48
2.09329				49
2.09597				50
16				
PERF				
11				
0	68.93	570.	1.0	
.0556	68.26			
.1674	71.49			
.2778	71.56			
.3895	71.35			
.5003	71.49			
.6119	71.42			
.7205	70.99			
.8354	71.06			
.9426	70.42			
1.00	70.14			

DE 2

CARD FORMAT

JOB TITLE: Sample Case SHEET 1 OF 4
PROJECT NO. Plug Nozzle PROGRAMMER

1 ** UNSHROUDED PLUG NOZZLE
1 250

1 1 1 4 1
11 50

0.1 .00003
3.31 1.1318 1

3.31	.0565	1.1318	.179	8
3.3213	.1695	1.1666	.509	9
3.3439	.2260	1.2336	.6541	10
3.3665	.1990	1.2974	.541	11

CARD FORMAT

JOB TITLE

PROJECT NO. PLUG NOZZLE

SHEET 2 OF 4

PROGRAMMER

3.3840	.133	1.3418	.4504	12
3.3931	.0935	1.3875	.4870	13
3.4024		1.4392	.5455	14
3.4118		1.4966	.5785	15
3.4211		1.5549	.5835	16
3.4304		1.6133		17
3.4398		1.6717		18
3.4491		1.7301		19
3.4585	.0935	1.7884		20
3.4678	.093	1.8468		21
3.4771	.093	1.9052		22
3.4864	.083	1.9636		23
3.4937	.059	2.0219		24
3.4982	.0315	2.0803		25
3.5000	.004	2.1387		26
3.4990	-.024	2.1971	.5835	27
3.4952	-.0515	2.2554	.5585	28
3.4887	-.079	2.3088	.491	29

DE 2

CARD FORMAT

JOB TITLE
PROJECT NO. PLUG NOZZLE

SHEET 3 OF 4
PROGRAMMER

Cols 1–15	Cols 16–30	Cols 31–45	Cols 46–60	Cols 61–80
3.4794	-.107	2.3536	.409	30
3.4673	-.135	2.3906	.334	31
3.4524	-.1635	2.4205	.2635	32
3.4346	-.1925	2.4433	.1965	33
3.4139	-.222	2.4597	.132	34
3.3902	-.252	2.4697	.069	35
3.3635	-.2825	2.4735	.0065	36
3.3337	-.3135	2.471	-.0555	37
3.3008	-.3455	2.4624	-.1175	38
3.2646	-.379	2.4475	-.182	39
3.2250	-.4135	2.4260	-.24	40
3.1819	-.449	2.3995	-.2665	41
3.1352	-.3261	2.3727	-.2680	42
3.1167	.0011	2.3459		43
3.1354	.1745	2.3191		44
3.1516	.0957	2.2923		45
3.1546	.0081	2.2655		46
3.1532	-.0275	2.2387		47

DF 2

CARD FORMAT

JOB TITLE ______ SHEET 4 OF 4
PROJECT NO. PLNG Nozzle PROGRAMMER ______

3.1491	-.05	2.2119		-.2680	48
3.1432	-.0538	2.1852			49
3.1383	-.0393	2.1584			50
0					
7					
PERF					
11					
0	35.087	549.0		1.0	
.062	35.08				
.1342	35.02				
.2161	34.98				
.3072	34.91				
.406	34.80				
.5119	34.73				
.6249	34.65				
.7451	34.62				
.8708	34.49				
1.0	34.39				

CARD FORMAT

JOB TITLE Sample Case SHEET 1 OF 1

PROJECT NO. PLUG Nozzle (Restarts) PROGRAMMER

```
1 ** UNSHROUDED PLUG NOZZLE -FREE PRESSURE RESTART, FIRST
    1  100  -10
  43   50
-4.99
1 ** UNSHROUDED PLUG NOZZLE -FREE PRESSURE RESTART, SECOND
    1  100  -10
  43   50
-4.99
1 ** UNSHROUDED PLUG NOZZLE -FREE PRESSURE RESTART, THIRD
    1  100  -10
  43   50
-4.99
```

CARD FORMAT

JOB TITLE ____________ SHEET 1 OF 5

PROJECT NO. UNCHOKED C-D Nozzle PROGRAMMER ____________

```
1 ** SUBSONIC CONVERGENT DIVERGENT NOZZLE (SAMPLE CALCULATION)
    1  300

  8.956     8.430     7.84      7.209     6.886


    1    1    1    4    1
   21   50

     0.5      .00004
  8.331           -.6239           .0001                                     1
  8.0079          -.6250                                                     2
  7.7060          -.5825                                                     3
  7.4254          -.5416                                                     4
  7.1644          -.5024                                                     5
  6.9230          -.4661                                                     6
  6.6983          -.4312                                                     7
  6.4918          -.3971                                                     8
  6.3012          -.3649                                                     9
  6.1269          -.3350                                                    10
  5.9662          -.3051                                                    11
```

DE 2

CARD FORMAT

JOB TITLE
PROJECT NO. UNCHOKED C-D NOZZLE

SHEET 2 OF 5
PROGRAMMER

Cols 1–15	Cols 16–30	Cols 31–45	Cols 79–80
5.8218	-.2734	.0001	12
5.6928	-.2446		13
5.5772	-.2168		14
5.4760	-.1888		15
5.3884	-.1612		16
5.3184	-.1328		17
5.2556	-.1035		18
5.2113	-.0797		19
5.1759	-.0548		20
5.1565	-.0254		21
5.1505	-.0013		22
5.1552	.0262		23
5.1767	.0588		24
5.2190	.0888		25
5.2655	.1041		26
5.3181	.1051		27
5.3706	.1051		28
5.4232	.1051		29

DE 2

CARD FORMAT

JOB TITLE
PROJECT NO. UNCHOKED C-D NOZZLE

SHEET 3 OF 5
PROGRAMMER

Cols 1–15	Cols 16–30	Cols 31–45	Cols 79–80
5.4757	.1051	.0001	30
5.5283			31
5.5808			32
5.6334			33
5.6859			34
5.7385			35
5.7910			36
5.8436			37
5.8961			38
5.9487			39
6.0012			40
6.0538			41
6.1063			42
6.1589			43
6.2114			44
6.2640			45
6.3165			46
6.3691			47

DF 2

CARD FORMAT

JOB TITLE ______ SHEET 4 OF 5

PROJECT NO. UNCHOKED C-D NOZZLE PROGRAMMER ______

6.4216	.1051	.0001						48
6.4742								49
6.5267								50
0								
50								
REAL								
6								
0	10.0	1000.		.06	.025	.16	.75	
.09		950.		.04	.02	.18	.755	
.16		900.		.02	.01	.20	.76	
.36		850.		.01	.005	.22	.765	
.64		775.		.002	.001	.23	.77	
1.00		700.	1.0					
0								
3								
0	1.0009688	0						
0.5	1.00074	.05241						
1.0	1.0	.1051						

DF 2

CARD FORMAT

JOB TITLE
PROJECT NO. UNCHOKED C-D NOZZLE

SHEET 5 OF 5
PROGRAMMER

-9.16632

DE 2

APPENDIX V
SAMPLE PRINTOUT FOR C-D NOZZLE

NOMENCLATURE FOR COMPUTER PRINTOUT
(in chronological order)

DT	Increment of time used for calculations
DX	Increment of axial distance used for calculations
SO	Radial coordinate of nozzle wall
SOP	Slope of nozzle wall
SI	Radial coordinate of nozzle centerbody
SIP	Slope of nozzle centerbody
A	Area
A^*	Minimum area
R	Radius
R^*	Radius at minimum area
S	Difference in radial distance, S = SO - SI
DSO	Radial increment of nozzle wall
DX	Axial increment
SO′	Slope of nozzle wall, SO′ = SOP
SO′(D)	Slope of nozzle wall in degrees
DS1	Radial increment of nozzle centerbody
SI′	Slope of nozzle centerbody, SI′ = SIP
SI′(D)	Slope of nozzle centerbody in degrees
A0, A1, A2	Constants in specific heat-temperature relation
W_1	Flow variable, $W_1 = \rho r$
W_2	Flow variable, $W_2 = \rho ur$
W_3	Flow variable, $W_3 = \rho vr$
W_4	Flow variable, $W_4 = er$
P-STAT	Static pressure
P-STAG	Stagnation pressure

Temp (R)	Static temperature
T-Stag	Stagnation temperature
WF	Weight flow
VD	$\int \rho u^2 r dr$
PD	$\int P r dr$

INPUT DATA CARD IMAGE   PROGRAM NO. SER00202

```
1 **  C-D NOZZLE  LOCKHEED                                                    1
    1  300                                                                    2
   65.        60.        55.       50.       45.      40.      35.      30.   3
   25.        20.                                                             4
    1    1    1    4    1                                                     5
   21   50                                                                    6
   .100375     .00003                                                         7
(4G15.0)                                                                      8
2.71416        -.44           .0001                                      1    9
2.669996       -.44           .0001                                      2   10
2.6258         -.44           .0001                                      3   11
2.5817         -.44           .0001                                      4   12
2.5375         -.44           .0001                                      5   13
2.4933         -.44           .0001                                      6   14
2.4492         -.44           .0001                                      7   15
2.4050         -.44           .0001                                      8   16
2.3608         -.44           .0001                                      9   17
2.3167         -.44           .0001                                     10   18
2.2725         -.44           .0001                                     11   19
2.2284         -.44           .0001                                     12   20
2.1842         -.44           .0001                                     13   21
2.1400         -.44           .0001                                     14   22
2.0959         -.44           .0001                                     15   23
2.0517         -.44           .0001                                     16   24
2.0075         -.20664        .0001                                     17   25
2.01018        .0267074       .0001                                     18   26
2.01286        .0267074       .0001                                     19   27
2.01554        .0267074       .0001                                     20   28
2.01822        .0267074       .0001                                     21   29
2.02090        .0267074       .0001                                     22   30
2.02358        .0267074       .0001                                     23   31
2.02627        .0267074       .0001                                     24   32
2.02895        .0267074       .0001                                     25   33
2.03163        .0267074       .0001                                     26   34
2.03431        .0267074       .0001                                     27   35
2.03699        .0267074       .0001                                     28   36
2.03967        .0267074       .0001                                     29   37
2.04235        .0267074       .0001                                     30   38
2.04503        .0267074       .0001                                     31   39
2.04771        .0267074       .0001                                     32   40
2.05039        .0267074       .0001                                     33   41
2.05307        .0267074       .0001                                     34   42
2.05575        .0267074       .0001                                     35   43
2.05843        .0267074       .0001                                     36   44
2.06112        .0267074       .0001                                     37   45
2.06380        .0267074       .0001                                     38   46
2.06648        .0267074       .0001                                     39   47
2.06916        .0267074       .0001                                     40   48
2.07184        .0267074       .0001                                     41   49
2.07452        .0267074       .0001                                     42   50
```

```
      2.07720        .0267074        .0001                                              43     51
      2.07989        .0267074        .0001                                              44     52
      2.08257        .0267074        .0001                                              45     53
      2.08525        .0267074        .0001                                              46     54
      2.08793        .0267074        .0001                                              47     55
      2.09061        .0267074        .0001                                              48     56
      2.09329        .0267074        .0001                                              49     57
      2.09597        .0267074        .0001                                              50     58
          0                                                                                    59
         16                                                                                    60
      PERF                                                                                     61
         11                                                                                    62
          0           68.93          570.          1.0                                         63
       .0556          69.20          570.          1.0                                         64
       .1674          71.49          570.          1.0                                         65
       .2776          71.56          570.          1.0                                         66
       .3895          71.35          570.          1.0                                         67
       .5003          71.49          570.          1.0                                         68
       .6119          71.42          570.          1.0                                         69
       .7205          70.99          570.          1.0                                         70
       .8254          71.06          570.          1.0                                         71
       .9426          70.42          570.          1.0                                         72
        1.00          70.14          570.          1.0                                         73
                                                                                               74
                                                                                               75
****************************************************** END OF INPUT DATA *******************************************************
```

NO. PSIA LINES = 10

1	65.0000	2	60.0000	3	55.0000	4	50.0000
5	45.0000	6	40.0000	7	35.0000	8	30.0000
9	25.0000	10	20.0000				

INTERPOLATION FACTORS

1 1 1 4 1

1.00000 1.00000 1.00000 4.00000 1.00000 8.00000

0.125000 0.125000 0.125000 0.500000 0.125000

NO. POINTS ON VERTICAL LINE(NF)= 21 NO. OF WALL POINTS(NF) = 50

DT = 0.0300(MILLISECONDS) DX = 0.10037 DY = 0.05000

NOZZLE GEOMETRY

	SO	SOP	SI	SIP	
1	2.714160	-0.440000	0.000100	0.0	1
2	2.669995	-0.440000	0.000100	0.0	2
3	2.625799	-0.440000	0.000100	0.0	3
4	2.581695	-0.440000	0.000100	0.0	4
5	2.537495	-0.440000	0.000100	0.0	5
6	2.493295	-0.440000	0.000100	0.0	6
7	2.449200	-0.440000	0.000100	0.0	7
8	2.405000	-0.440000	0.000100	0.0	8
9	2.360800	-0.440000	0.000100	0.0	9
10	2.316700	-0.440000	0.000100	0.0	10
11	2.272499	-0.440000	0.000100	0.0	11
12	2.228299	-0.440000	0.000100	0.0	12
13	2.184199	-0.440000	0.000100	0.0	13
14	2.139999	-0.440000	0.000100	0.0	14
15	2.095900	-0.440000	0.000100	0.0	15
16	2.051700	-0.440000	0.000100	0.0	16
17	2.007500	-0.206640	0.000100	0.0	17
18	2.010180	0.026707	0.000100	0.0	18
19	2.012859	0.026707	0.000100	0.0	19
20	2.015539	0.026707	0.000100	0.0	20
21	2.018220	0.026707	0.000100	0.0	21
22	2.020900	0.026707	0.000100	0.0	22
23	2.023590	0.026707	0.000100	0.0	23
24	2.026270	0.026707	0.000100	0.0	24
25	2.028950	0.026707	0.000100	0.0	25
26	2.031630	0.026707	0.000100	0.0	26
27	2.034309	0.026707	0.000100	0.0	27
28	2.036989	0.026707	0.000100	0.0	28

29	2.039670	0.026707	0.000100	0.0	29
30	2.042350	0.026707	0.000100	0.0	30
31	2.045030	0.026707	0.000100	0.0	31
32	2.047709	0.026707	0.000100	0.0	32
33	2.050389	0.026707	0.000100	0.0	33
34	2.053069	0.026707	0.000100	0.0	34
35	2.055750	0.026707	0.000100	0.0	35
36	2.058430	0.026707	0.000100	0.0	36
37	2.061119	0.026707	0.000100	0.0	37
38	2.063800	0.026707	0.000100	0.0	38
39	2.066490	0.026707	0.000100	0.0	39
40	2.069160	0.026707	0.000100	0.0	40
41	2.071839	0.026707	0.000100	0.0	41
42	2.074519	0.026707	0.000100	0.0	42
43	2.077200	0.026707	0.000100	0.0	43
44	2.079889	0.026707	0.000100	0.0	44
45	2.082569	0.026707	0.000100	0.0	45
46	2.085250	0.026707	0.000100	0.0	46
47	2.087930	0.026707	0.000100	0.0	47
48	2.090610	0.026707	0.000100	0.0	48
49	2.093289	0.026707	0.000100	0.0	49
50	2.095969	0.026707	0.000100	0.0	50

R ARRAY

1	0.0001	0.1358	0.2715	0.4072	0.5429	0.6786	0.8143	0.9500	1.0857	1.2214	1.3571	1.4928
	1.6285	1.7642	1.8999	2.0356	2.1713	2.3070	2.4428	2.5785	2.7142			
2	0.0001	0.1336	0.2671	0.4006	0.5341	0.6676	0.8011	0.9346	1.0681	1.2016	1.3350	1.4685
	1.6020	1.7355	1.8690	2.0025	2.1360	2.2695	2.4030	2.5365	2.6700			
3	0.0001	0.1314	0.2627	0.3940	0.5252	0.6565	0.7878	0.9191	1.0504	1.1817	1.3129	1.4442
	1.5755	1.7068	1.8381	1.9694	2.1007	2.2319	2.3632	2.4945	2.6258			
4	0.0001	0.1292	0.2583	0.3873	0.5164	0.6455	0.7746	0.9037	1.0327	1.1618	1.2909	1.4200
	1.5491	1.6781	1.8072	1.9363	2.0654	2.1945	2.3235	2.4526	2.5817			
5	0.0001	0.1270	0.2538	0.3807	0.5076	0.6344	0.7613	0.8882	1.0151	1.1419	1.2688	1.3957
	1.5225	1.6494	1.7763	1.9031	2.0300	2.1569	2.2838	2.4106	2.5375			
6	0.0001	0.1248	0.2494	0.3741	0.4987	0.6234	0.7481	0.8727	0.9974	1.1220	1.2467	1.3714
	1.4960	1.6207	1.7453	1.8700	1.9947	2.1193	2.2440	2.3686	2.4933			
7	0.0001	0.1226	0.2452	0.3675	0.4899	0.6124	0.7348	0.8573	0.9797	1.1022	1.2246	1.3471
	1.4696	1.5920	1.7145	1.8369	1.9594	2.0818	2.2043	2.3267	2.4492			
8	0.0001	0.1203	0.2406	0.3608	0.4811	0.6013	0.7216	0.8418	0.9621	1.0823	1.2025	1.3228
	1.4430	1.5633	1.6835	1.8038	1.9240	2.0443	2.1645	2.2848	2.4050			
9	0.0001	0.1181	0.2362	0.3542	0.4722	0.5903	0.7083	0.8263	0.9444	1.0624	1.1804	1.2985
	1.4165	1.5346	1.6526	1.7706	1.8887	2.0067	2.1247	2.2428	2.3608			
10	0.0001	0.1159	0.2318	0.3476	0.4634	0.5792	0.6951	0.8109	0.9267	1.0426	1.1584	1.2742
	1.3901	1.5059	1.6217	1.7375	1.8534	1.9692	2.0850	2.2009	2.3167			
11	0.0001	0.1137	0.2273	0.3410	0.4546	0.5682	0.6818	0.7954	0.9091	1.0227	1.1363	1.2499
	1.3635	1.4772	1.5908	1.7044	1.8180	1.9316	2.0453	2.1589	2.2725			
12	0.0001	0.1115	0.2229	0.3343	0.4458	0.5572	0.6686	0.7800	0.8914	1.0028	1.1142	1.2257
	1.3371	1.4485	1.5599	1.6713	1.7827	1.8942	2.0056	2.1170	2.2284			
13	0.0001	0.1093	0.2185	0.3277	0.4369	0.5461	0.6553	0.7645	0.8737	0.9829	1.0921	1.2014
	1.3106	1.4198	1.5290	1.6382	1.7474	1.8566	1.9658	2.0750	2.1842			
14	0.0001	0.1071	0.2141	0.3211	0.4281	0.5351	0.6421	0.7491	0.8561	0.9631	1.0700	1.1770
	1.2840	1.3910	1.4980	1.6050	1.7120	1.8190	1.9260	2.0330	2.1400			
15	0.0001	0.1049	0.2097	0.3145	0.4193	0.5240	0.6288	0.7336	0.8384	0.9432	1.0480	1.1528
	1.2576	1.3624	1.4672	1.5719	1.6767	1.7815	1.8863	1.9911	2.0959			
16	0.0001	0.1027	0.2053	0.3078	0.4104	0.5130	0.6156	0.7182	0.8207	0.9233	1.0259	1.1285
	1.2311	1.3336	1.4362	1.5388	1.6414	1.7440	1.8465	1.9491	2.0517			
17	0.0001	0.1005	0.2008	0.3012	0.4016	0.5019	0.6023	0.7027	0.8031	0.9034	1.0038	1.1042
	1.2045	1.3049	1.4053	1.5056	1.6060	1.7064	1.8068	1.9071	2.0075			
18	0.0001	0.1006	0.2011	0.3016	0.4021	0.5026	0.6031	0.7036	0.8041	0.9046	1.0051	1.1056
	1.2061	1.3067	1.4072	1.5077	1.6082	1.7087	1.8092	1.9097	2.0102			
19	0.0001	0.1007	0.2014	0.3020	0.4027	0.5033	0.6039	0.7046	0.8052	0.9058	1.0065	1.1071
	1.2078	1.3084	1.4090	1.5097	1.6103	1.7109	1.8116	1.9122	2.0129			
20	0.0001	0.1009	0.2016	0.3024	0.4032	0.5040	0.6047	0.7055	0.8063	0.9070	1.0078	1.1086
	1.2094	1.3101	1.4109	1.5117	1.6125	1.7132	1.8140	1.9145	2.0155			
21	0.0001	0.1010	0.2019	0.3028	0.4037	0.5046	0.6055	0.7064	0.8073	0.9083	1.0092	1.1101
	1.2110	1.3119	1.4128	1.5137	1.6146	1.7155	1.8164	1.9173	2.0182			
22	0.0001	0.1011	0.2022	0.3032	0.4043	0.5053	0.6063	0.7074	0.8084	0.9095	1.0105	1.1115
	1.2126	1.3136	1.4147	1.5157	1.6167	1.7178	1.8188	1.9199	2.0209			
23	0.0001	0.1013	0.2024	0.3036	0.4048	0.5060	0.6071	0.7083	0.8095	0.9107	1.0118	1.1130
	1.2142	1.3154	1.4165	1.5177	1.6189	1.7201	1.8212	1.9224	2.0236			
24	0.0001	0.1014	0.2027	0.3040	0.4053	0.5066	0.6080	0.7093	0.8106	0.9119	1.0132	1.1145
	1.2158	1.3171	1.4184	1.5197	1.6210	1.7223	1.8237	1.9250	2.0263			
25	0.0001	0.1015	0.2030	0.3044	0.4059	0.5073	0.6088	0.7102	0.8116	0.9131	1.0145	1.1160
	1.2174	1.3189	1.4203	1.5217	1.6232	1.7246	1.8261	1.9275	2.0289			
26	0.0001	0.1017	0.2033	0.3048	0.4064	0.5080	0.6096	0.7111	0.8127	0.9143	1.0159	1.1174
	1.2190	1.3206	1.4222	1.5237	1.6253	1.7269	1.8285	1.9301	2.0316			
27	0.0001	0.1018	0.2035	0.3052	0.4069	0.5087	0.6104	0.7121	0.8138	0.9155	1.0172	1.1189
	1.2206	1.3223	1.4240	1.5258	1.6275	1.7292	1.8309	1.9326	2.0343			

28	0.0001	0.1019	0.2038	0.3056	0.4075	0.5093	0.6112	0.7130	0.8149	0.9167	1.0185	1.1204
	1.2222	1.3241	1.4259	1.5278	1.6296	1.7315	1.8333	1.9351	2.0370			
29	0.0001	0.1021	0.2041	0.3060	0.4080	0.5100	0.6120	0.7139	0.8159	0.9179	1.0199	1.1219
	1.2238	1.3258	1.4278	1.5298	1.6318	1.7337	1.8357	1.9377	2.0397			
30	0.0001	0.1022	0.2043	0.3064	0.4085	0.5107	0.6128	0.7149	0.8170	0.9191	1.0212	1.1233
	1.2254	1.3276	1.4297	1.5318	1.6339	1.7360	1.8381	1.9402	2.0423			
31	0.0001	0.1023	0.2046	0.3068	0.4091	0.5113	0.6136	0.7158	0.8181	0.9203	1.0226	1.1248
	1.2271	1.3293	1.4315	1.5338	1.6360	1.7383	1.8405	1.9428	2.0450			
32	0.0001	0.1025	0.2045	0.3072	0.4096	0.5120	0.6144	0.7166	0.8191	0.9215	1.0239	1.1263
	1.2287	1.3310	1.4334	1.5359	1.6382	1.7406	1.8429	1.9453	2.0477			
33	0.0001	0.1026	0.2051	0.3076	0.4102	0.5127	0.6152	0.7177	0.8202	0.9227	1.0252	1.1278
	1.2303	1.3328	1.4353	1.5378	1.6403	1.7429	1.8454	1.9479	2.0504			
34	0.0001	0.1027	0.2054	0.3080	0.4107	0.5133	0.6160	0.7186	0.8213	0.9239	1.0266	1.1292
	1.2319	1.3345	1.4372	1.5398	1.6425	1.7451	1.8478	1.9504	2.0531			
35	0.0001	0.1029	0.2057	0.3086	0.4114	0.5140	0.6168	0.7196	0.8224	0.9251	1.0279	1.1307
	1.2335	1.3363	1.4391	1.5418	1.6446	1.7474	1.8502	1.9530	2.0557			
36	0.0001	0.1030	0.2055	0.3088	0.4118	0.5147	0.6176	0.7205	0.8234	0.9263	1.0293	1.1322
	1.2351	1.3380	1.4409	1.5438	1.6468	1.7497	1.8526	1.9555	2.0584			
37	0.0001	0.1032	0.2062	0.3093	0.4123	0.5154	0.6184	0.7215	0.8245	0.9276	1.0306	1.1337
	1.2367	1.3398	1.4428	1.5459	1.6489	1.7520	1.8550	1.9581	2.0611			
38	0.0001	0.1033	0.2065	0.3097	0.4129	0.5160	0.6192	0.7224	0.8256	0.9288	1.0319	1.1351
	1.2383	1.3415	1.4447	1.5479	1.6511	1.7542	1.8574	1.9606	2.0638			
39	0.0001	0.1034	0.2067	0.3101	0.4134	0.5167	0.6200	0.7233	0.8267	0.9300	1.0333	1.1366
	1.2399	1.3432	1.4466	1.5499	1.6532	1.7565	1.8598	1.9632	2.0665			
40	0.0001	0.1036	0.2070	0.3105	0.4139	0.5174	0.6209	0.7243	0.8277	0.9312	1.0346	1.1381
	1.2415	1.3450	1.4484	1.5519	1.6553	1.7588	1.8623	1.9657	2.0692			
41	0.0001	0.1037	0.2073	0.3109	0.4144	0.5180	0.6216	0.7252	0.8288	0.9324	1.0360	1.1396
	1.2431	1.3467	1.4503	1.5539	1.6575	1.7611	1.8647	1.9683	2.0718			
42	0.0001	0.1038	0.2075	0.3113	0.4150	0.5187	0.6224	0.7261	0.8299	0.9336	1.0373	1.1410
	1.2448	1.3485	1.4522	1.5559	1.6596	1.7634	1.8671	1.9708	2.0745			
43	0.0001	0.1040	0.2078	0.3117	0.4155	0.5194	0.6232	0.7271	0.8309	0.9348	1.0386	1.1425
	1.2464	1.3502	1.4541	1.5579	1.6618	1.7656	1.8695	1.9733	2.0772			
44	0.0001	0.1041	0.2081	0.3121	0.4161	0.5200	0.6240	0.7280	0.8320	0.9360	1.0400	1.1440
	1.2480	1.3520	1.4560	1.5599	1.6639	1.7679	1.8719	1.9759	2.0799			
45	0.0001	0.1042	0.2083	0.3125	0.4166	.5207	0.6248	0.7290	0.8331	0.9372	1.0413	1.1455
	1.2496	1.3537	1.4578	1.5619	1.6661	1.7702	1.8743	1.9764	2.0826			
46	0.0001	0.1044	0.2086	0.3129	0.4171	0.5214	0.6256	0.7299	0.8342	0.9384	1.0427	1.1469
	1.2512	1.3554	1.4597	1.5640	1.6682	1.7725	1.8767	1.9810	2.0852			
47	0.0001	0.1045	0.2089	0.3133	0.4177	0.5221	0.6264	0.7308	0.8352	0.9396	1.0440	1.1484
	1.2528	1.3572	1.4616	1.5660	1.6704	1.7748	1.8791	1.9835	2.0879			
48	0.0001	0.1046	0.2092	0.3137	0.4182	0.5227	0.6273	0.7318	0.8363	0.9408	1.0454	1.1499
	1.2544	1.3589	1.4635	1.5680	1.6725	1.7770	1.8816	1.9861	2.0906			
49	0.0001	0.1048	0.2094	0.3141	0.4187	0.5234	0.6281	0.7327	0.8374	0.9420	1.0467	1.1514
	1.2560	1.3607	1.4653	1.5700	1.6747	1.7793	1.8840	1.9886	2.0933			
50	0.0001	0.1049	0.2097	0.3145	0.4193	0.5241	0.6289	0.7337	0.8384	0.9432	1.0480	1.1528
	1.2576	1.3624	1.4672	1.5720	1.6768	1.7816	1.8864	1.9912	2.0960			

MIN X-STA = 17 MIN AREA= 4.0301 EFFECTIVE RADIUS = 2.0075

	AREA	A/A*	R/R*
1	7.3667	1.8279	1.3520
2	7.1289	1.7689	1.3300
3	6.8948	1.7109	1.3080
4	6.6652	1.6539	1.2860
5	6.4389	1.5977	1.2640
6	6.2165	1.5425	1.2420
7	5.9996	1.4985	1.2200
8	5.7840	1.4352	1.1980
9	5.5734	1.3830	1.1760
10	5.3671	1.3318	1.1540
11	5.1647	1.2814	1.1320
12	4.9658	1.2322	1.1100
13	4.7707	1.1838	1.0880
14	4.5796	1.1364	1.0660
15	4.3928	1.0900	1.0440
16	4.2095	1.0445	1.0220
17	4.0301	1.0000	1.0000
18	4.0408	1.0027	1.0013
19	4.0516	1.0053	1.0027
20	4.0624	1.0080	1.0040
21	4.0732	1.0107	1.0053
22	4.0840	1.0134	1.0067
23	4.0949	1.0161	1.0080
24	4.1058	1.0188	1.0093
25	4.1166	1.0215	1.0107
26	4.1275	1.0242	1.0120
27	4.1384	1.0269	1.0134
28	4.1493	1.0296	1.0147
29	4.1603	1.0323	1.0160
30	4.1712	1.0350	1.0174
31	4.1821	1.0377	1.0187
32	4.1931	1.0405	1.0200
33	4.2041	1.0432	1.0214
34	4.2151	1.0459	1.0227
35	4.2261	1.0486	1.0240
36	4.2371	1.0514	1.0254
37	4.2482	1.0541	1.0267
38	4.2593	1.0569	1.0280
39	4.2703	1.0596	1.0294
40	4.2814	1.0624	1.0307
41	4.2925	1.0651	1.0320
42	4.3036	1.0679	1.0334
43	4.3148	1.0706	1.0347
44	4.3259	1.0734	1.0361
45	4.3371	1.0762	1.0374
46	4.3483	1.0790	1.0387
47	4.3594	1.0817	1.0401
48	4.3706	1.0845	1.0414
49	4.3819	1.0873	1.0427
50	4.3931	1.0901	1.0441

NOZZLE GEOMETRY

	X	AREA	S	SO	DSO/DX	SO'	SO'(D)	SI	DSI/DX	SI'	SI'(D)
1	0.0	7.3667	2.7141	2.7142	0.0	-0.4400	0.0	0.0001	0.0	0.0	0.0
2	0.1004	7.1289	2.6699	2.6700	-0.4402	-0.4400	-23.7495	0.0001	0.0	0.0	0.0
3	0.2007	6.8948	2.6257	2.6258	-0.4398	-0.4400	-23.7495	0.0001	0.0	0.0	0.0
4	0.3011	6.6652	2.5816	2.5817	-0.4398	-0.4400	-23.7495	0.0001	0.0	0.0	0.0
5	0.4015	6.4389	2.5374	2.5375	-0.4403	-0.4400	-23.7495	0.0001	0.0	0.0	0.0
6	0.5019	6.2165	2.4932	2.4933	-0.4398	-0.4400	-23.7495	0.0001	0.0	0.0	0.0
7	0.6022	5.9986	2.4491	2.4492	-0.4399	-0.4400	-23.7495	0.0001	0.0	0.0	0.0
8	0.7026	5.7840	2.4049	2.4050	-0.4403	-0.4400	-23.7495	0.0001	0.0	0.0	0.0
9	0.8030	5.5734	2.3607	2.3608	-0.4399	-0.4400	-23.7495	0.0001	0.0	0.0	0.0
10	0.9034	5.3671	2.3166	2.3167	-0.4399	-0.4400	-23.7495	0.0001	0.0	0.0	0.0
11	1.0037	5.1642	2.2724	2.2725	-0.4399	-0.4400	-23.7495	0.0001	0.0	0.0	0.0
12	1.1041	4.9658	2.2283	2.2284	-0.4398	-0.4400	-23.7495	0.0001	0.0	0.0	0.0
13	1.2045	4.7707	2.1841	2.1842	-0.4403	-0.4400	-23.7495	0.0001	0.0	0.0	0.0
14	1.3049	4.5796	2.1399	2.1400	-0.4398	-0.4400	-23.7495	0.0001	0.0	0.0	0.0
15	1.4052	4.3928	2.0958	2.0959	-0.4398	-0.4400	-23.7495	0.0001	0.0	0.0	0.0
16	1.5056	4.2095	2.0516	2.0517	-0.4403	-0.4400	-23.7495	0.0001	0.0	0.0	0.0
17	1.6060	4.0301	2.0074	2.0075	-0.2068	-0.2066	-11.6753	0.0001	0.0	0.0	0.0
18	1.7064	4.0406	2.0101	2.0102	0.0267	0.0267	1.5299	0.0001	0.0	0.0	0.0
19	1.8067	4.0516	2.0128	2.0129	0.0267	0.0267	1.5299	0.0001	0.0	0.0	0.0
20	1.9071	4.0624	2.0154	2.0155	0.0267	0.0267	1.5299	0.0001	0.0	0.0	0.0
21	2.0075	4.0732	2.0181	2.0182	0.0267	0.0267	1.5299	0.0001	0.0	0.0	0.0
22	2.1079	4.0840	2.0208	2.0209	0.0267	0.0267	1.5299	0.0001	0.0	0.0	0.0
23	2.2082	4.0949	2.0235	2.0236	0.0268	0.0267	1.5298	0.0001	0.0	0.0	0.0
24	2.3086	4.1056	2.0262	2.0263	0.0268	0.0267	1.5299	0.0001	0.0	0.0	0.0
25	2.4090	4.1166	2.0288	2.0289	0.0267	0.0267	1.5299	0.0001	0.0	0.0	0.0
26	2.5094	4.1275	2.0315	2.0316	0.0267	0.0267	1.5299	0.0001	0.0	0.0	0.0

27	2.6097	4.1354	2.0342	2.0343	0.0267	0.0267	1.5299	0.0001	0.0	0.0	0.0
28	2.7101	4.1493	2.0369	2.0370	0.0267	0.0267	1.5299	0.0001	0.0	0.0	0.0
29	2.8105	4.1603	2.0396	2.0397	0.0267	0.0267	1.5299	0.0001	0.0	0.0	0.0
30	2.9109	4.1712	2.0422	2.0423	0.0267	0.0267	1.5299	0.0001	0.0	0.0	0.0
31	3.0112	4.1821	2.0449	2.0450	0.0267	0.0267	1.5299	0.0001	0.0	0.0	0.0
32	3.1116	4.1931	2.0476	2.0477	0.0267	0.0267	1.5299	0.0001	0.0	0.0	0.0
33	3.2120	4.2041	2.0503	2.0504	0.0267	0.0267	1.5299	0.0001	0.0	0.0	0.0
34	3.3124	4.2151	2.0530	2.0531	0.0267	0.0267	1.5299	0.0001	0.0	0.0	0.0
35	3.4127	4.2261	2.0556	2.0557	0.0267	0.0267	1.5299	0.0001	0.0	0.0	0.0
36	3.5131	4.2371	2.0583	2.0584	0.0267	0.0267	1.5299	0.0001	0.0	0.0	0.0
37	3.6135	4.2482	2.0610	2.0611	0.0268	0.0267	1.5299	0.0001	0.0	0.0	0.0
38	3.7139	4.2593	2.0637	2.0638	0.0267	0.0267	1.5299	0.0001	0.0	0.0	0.0
39	3.6142	4.2703	2.0664	2.0565	0.0267	0.0267	1.5299	0.0001	0.0	0.0	0.0
40	3.9146	4.2814	2.0691	2.0592	0.0267	0.0267	1.5299	0.0001	0.0	0.0	0.0
41	4.0150	4.2925	2.0717	2.0718	0.0267	0.0267	1.5299	0.0001	0.0	0.0	0.0
42	4.1154	4.3036	2.0744	2.0745	0.0267	0.0267	1.5299	0.0001	0.0	0.0	0.0
43	4.2157	4.3148	2.0771	2.0772	0.0268	0.0267	1.5299	0.0001	0.0	0.0	0.0
44	4.3161	4.3259	2.0798	2.0799	0.0267	0.0267	1.5299	0.0001	0.0	0.0	0.0
45	4.4165	4.3371	2.0825	2.0826	0.0267	0.0267	1.5299	0.0001	0.0	0.0	0.0
46	4.5169	4.3483	2.0851	2.0852	0.0267	0.0267	1.5299	0.0001	0.0	0.0	0.0
47	4.6172	4.3594	2.0878	2.0879	0.0267	0.0267	1.5299	0.0001	0.0	0.0	0.0
48	4.7176	4.3706	2.0905	2.0906	0.0267	0.0267	1.5299	0.0001	0.0	0.0	0.0
49	4.8180	4.3819	2.0932	2.0933	0.0267	0.0267	1.5299	0.0001	0.0	0.0	0.0
50	4.9184	4.3931	2.0959	2.0960	0.0	0.0267	0.0	0.0001	0.0	0.0	0.0

INFLECTION POINT NO. = 16

	(SUP-SIP)/S	SIP/S	1/S
1	-0.162119	0.0	0.368452
2	-0.164900	0.0	0.374547
3	-0.167574	0.0	0.380951
4	-0.170437	0.0	0.387357
5	-0.173406	0.0	0.394104
6	-0.176480	0.0	0.401091
7	-0.179658	0.0	0.408313
8	-0.182986	0.0	0.415814
9	-0.186385	0.0	0.423603
10	-0.189933	0.0	0.431667
11	-0.193628	0.0	0.440064
12	-0.197460	0.0	0.446773
13	-0.201436	0.0	0.457855
14	-0.205617	0.0	0.467312
15	-0.209944	0.0	0.477145
16	-0.214467	0.0	0.487425
17	-0.102939	0.0	0.496157
18	1.328674E-02	0.0	0.497493
19	1.326905E-02	0.0	0.496830
20	1.325141E-02	0.0	0.496170
21	1.323380E-02	0.0	0.495511
22	1.321625E-02	0.0	0.494854
23	1.319875E-02	0.0	0.494198
24	1.318122E-02	0.0	0.493542
25	1.316381E-02	0.0	0.492890
26	1.314645E-02	0.0	0.492240
27	1.312913E-02	0.0	0.491591
28	1.311186E-02	0.0	0.490945
29	1.309462E-02	0.0	0.490299
30	1.307744E-02	0.0	0.489656
31	1.306030E-02	0.0	0.489014
32	1.304321E-02	0.0	0.488374
33	1.302616E-02	0.0	0.487736
34	1.300916E-02	0.0	0.487099
35	1.299219E-02	0.0	0.486464
36	1.297528E-02	0.0	0.485831
37	1.295834E-02	0.0	0.485197
38	1.294151E-02	0.0	0.484567
39	1.292473E-02	0.0	0.483938
40	1.290799E-02	0.0	0.483311
41	1.289125E-02	0.0	0.482686
42	1.287464E-02	0.0	0.482063
43	1.285803E-02	0.0	0.481440
44	1.284140E-02	0.0	0.480818
45	1.282487E-02	0.0	0.480199
46	1.280838E-02	0.0	0.479592
47	1.279194E-02	0.0	0.478966
48	1.277554E-02	0.0	0.478352
49	1.275919E-02	0.0	0.477749
50	1.274287E-02	0.0	0.477129

	(SOP-SIP)/S	SIP/S	1/S	90.5*DT/DY
1	-4.853560E-05	0.0	1.105355E-04	
2	-4.944013E-05	0.0	1.123639E-04	
3	-5.027231E-05	0.0	1.142553E-04	
4	-5.113108E-05	0.0	1.162073E-04	
5	-5.202174E-05	0.0	1.182313E-04	
6	-5.294430E-05	0.0	1.203273E-04	
7	-5.389733E-05	0.0	1.224940E-04	
8	-5.488792E-05	0.0	1.247453E-04	
9	-5.591560E-05	0.0	1.270839E-04	
10	-5.698303E-05	0.0	1.295001E-04	
11	-5.808348E-05	0.0	1.320190E-04	
12	-5.923798E-05	0.0	1.346318E-04	
13	-6.043678E-05	0.0	1.373554E-04	
14	-6.168512E-05	0.0	1.401935E-04	
15	-6.298309E-05	0.0	1.431434E-04	
16	-6.434001E-05	0.0	1.462273E-04	
17	-3.048171E-05	0.0	1.494470E-04	
18	3.986020E-06	0.0	1.492478E-04	
19	3.980714E-06	0.0	1.490451E-04	
20	3.975420E-06	0.0	1.488509E-04	
21	3.970135E-06	0.0	1.486532E-04	
22	3.964874E-06	0.0	1.484560E-04	
23	3.959623E-06	0.0	1.482594E-04	
24	3.954367E-06	0.0	1.480526E-04	
25	3.949142E-06	0.0	1.478670E-04	
26	3.943934E-06	0.0	1.476720E-04	
27	3.938738E-06	0.0	1.474774E-04	
28	3.933555E-06	0.0	1.472834E-04	
29	3.928386E-06	0.0	1.470699E-04	
30	3.923230E-06	0.0	1.468968E-04	
31	3.918090E-06	0.0	1.467043E-04	
32	3.912962E-06	0.0	1.465123E-04	
33	3.907847E-06	0.0	1.463208E-04	
34	3.902746E-06	0.0	1.461298E-04	
35	3.897657E-06	0.0	1.459392E-04	
36	3.892582E-06	0.0	1.457492E-04	
37	3.887507E-06	0.0	1.455590E-04	
38	3.882453E-06	0.0	1.453699E-04	
39	3.877418E-06	0.0	1.451814E-04	
40	3.872398E-06	0.0	1.449934E-04	
41	3.867387E-06	0.0	1.448058E-04	
42	3.862391E-06	0.0	1.446188E-04	
43	3.857405E-06	0.0	1.444321E-04	
44	3.852418E-06	0.0	1.442454E-04	
45	3.847460E-06	0.0	1.440597E-04	
46	3.842514E-06	0.0	1.438745E-04	
47	3.837582E-06	0.0	1.436898E-04	
48	3.832663E-06	0.0	1.435056E-04	
49	3.827756E-06	0.0	1.433219E-04	
50	3.822861E-06	0.0	1.431387E-04	

X-PLOT PARAMETERS X-ZERO = 1.0000 UNITS/INCH = 4.00000

1.00000	2.00000	3.00000	4.00000	5.00000	6.00000
7.00000	8.00000	9.00000	10.0000	11.0000	12.0000
13.0000	14.0000	15.0000	16.0000	17.0000	18.0000
19.0000	20.0000	21.0000	22.0000	23.0000	24.0000
25.0000	26.0000	27.0000	28.0000	29.0000	30.0000
31.0000	32.0000	33.0000	34.0000	35.0000	36.0000
37.0000	38.0000	39.0000	40.0000	41.0000	42.0000
43.0000	44.0000	45.0000	46.0000	47.0000	48.0000
49.0000	50.0000				

Y-PLOT PARAMETERS Y-ZERO = 0.0 UNITS/INCH = 0.400000

1	2.7142	2	2.6700	3	2.6250	4	2.5817	5	2.5375
6	2.4923	7	2.4452	8	2.4050	9	2.3608	10	2.3167
11	2.2725	12	2.2254	13	2.1842	14	2.1400	15	2.0959
16	2.0517	17	2.0075	18	2.0102	19	2.0129	20	2.0155
21	2.0182	22	2.0209	23	2.0236	24	2.0263	25	2.0289
26	2.0316	27	2.0343	28	2.0370	29	2.0397	30	2.0423
31	2.0450	32	2.0477	33	2.0504	34	2.0531	35	2.0557
36	2.0584	37	2.0611	38	2.0638	39	2.0665	40	2.0692
41	2.0718	42	2.0745	43	2.0772	44	2.0799	45	2.0826
46	2.0852	47	2.0879	48	2.0906	49	2.0933	50	2.0960
51	0.0001	52	0.0001	53	0.0001	54	0.0001	55	0.0001
56	0.0001	57	0.0001	58	0.0001	59	0.0001	60	0.0001
61	0.0001	62	0.0001	63	0.0001	64	0.0001	65	0.0001
66	0.0001	67	0.0001	68	0.0001	69	0.0001	70	0.0001
71	0.0001	72	0.0001	73	0.0001	74	0.0001	75	0.0001
76	0.0001	77	0.0001	78	0.0001	79	0.0001	80	0.0001
81	0.0001	82	0.0001	83	0.0001	84	0.0001	85	0.0001
86	0.0001	87	0.0001	88	0.0001	89	0.0001	90	0.0001
91	0.0001	92	0.0001	93	0.0001	94	0.0001	95	0.0001
96	0.0001	97	0.0001	98	0.0001	99	0.0001	100	0.0001

CP DATA

COEFFICIENTS FOR CP(BTU/LB.MASS)= F(T-RANKINE)

		MOL. WT.	A0	A1*T	A2*T**2
1	AIR	28.970	0.240090	0.0	0.0
2	CO2	44.011	0.170765	0.0	0.0
3	CO	28.011	0.241531	0.0	0.0
4	H2O	18.016	0.430062	0.0	0.0
5	O2	32.000	0.150481	0.0	0.0
6	N2	28.000	0.246445	0.0	0.0
7	A	39.944	0.124345	0.0	0.0
8	H2	2.016	3.22600	0.0	0.0

RANKINE	AIR	CO2	CO	H2O	O2	N2	A	H2	CP(BTU/LBMASS-R)
0.0	0.2401	0.1209	0.2615	0.4301	0.1905	0.2464	0.1243	3.2260	0.0
100.0	0.2401	0.1208	0.2615	0.4301	0.1905	0.2464	0.1243	3.2260	100.0
200.0	0.2401	0.1208	0.2615	0.4301	0.1905	0.2464	0.1243	3.2260	200.0
300.0	0.2401	0.1208	0.2615	0.4301	0.1905	0.2464	0.1243	3.2260	300.0
400.0	0.2401	0.1208	0.2615	0.4301	0.1905	0.2464	0.1243	3.2260	400.0
500.0	0.2401	0.1208	0.2615	0.4301	0.1905	0.2464	0.1243	3.2260	500.0
600.0	0.2401	0.1208	0.2615	0.4301	0.1905	0.2464	0.1243	3.2260	600.0
700.0	0.2401	0.1208	0.2615	0.4301	0.1905	0.2464	0.1243	3.2260	700.0
800.0	0.2401	0.1208	0.2615	0.4301	0.1905	0.2464	0.1243	3.2260	800.0
900.0	0.2401	0.1208	0.2615	0.4301	0.1905	0.2464	0.1243	3.2250	900.0
1000.0	0.2401	0.1208	0.2615	0.4301	0.1905	0.2464	0.1243	3.2260	1000.0
1100.0	0.2401	0.1208	0.2615	0.4301	0.1905	0.2464	0.1243	3.2260	1100.0
1200.0	0.2401	0.1208	0.2615	0.4301	0.1905	0.2464	0.1243	3.2260	1200.0
1300.0	0.2401	0.1208	0.2615	0.4301	0.1905	0.2464	0.1243	3.2260	1300.0
1400.0	0.2401	0.1208	0.2615	0.4301	0.1905	0.2464	0.1243	3.2260	1400.0
1500.0	0.2401	0.1208	0.2615	0.4301	0.1905	0.2464	0.1243	3.2260	1500.0
1600.0	0.2401	0.1208	0.2615	0.4301	0.1905	0.2464	0.1243	3.2260	1600.0
1700.0	0.2401	0.1208	0.2615	0.4301	0.1905	0.2464	0.1243	3.2260	1700.0
1800.0	0.2401	0.1208	0.2615	0.4301	0.1905	0.2464	0.1243	3.2260	1800.0

RANKINE	AIR	CO2	CO	H2O	O2	N2	A	H2	CP(BTU/LBMOLE-R)
0.0	6.9554	5.3150	7.3257	7.7480	6.0954	6.9005	4.9670	6.5036	0.0
100.0	6.9554	5.3150	7.3257	7.7480	6.0954	6.9005	4.9670	6.5036	100.0
200.0	6.9554	5.3150	7.3257	7.7480	6.0954	6.9005	4.9670	6.5036	200.0
300.0	6.9554	5.3150	7.3257	7.7480	6.0954	6.9005	4.9670	6.5036	300.0
400.0	6.9554	5.3150	7.3257	7.7480	6.0954	6.9005	4.9670	6.5036	400.0
500.0	6.9554	5.3150	7.3257	7.7480	6.0954	6.9005	4.9670	6.5036	500.0
600.0	6.9554	5.3150	7.3257	7.7480	6.0954	6.9005	4.9670	6.5036	600.0
700.0	6.9554	5.3150	7.3257	7.7480	6.0954	6.9005	4.9670	6.5036	700.0
800.0	6.9554	5.3150	7.3257	7.7480	6.0954	6.9005	4.9670	6.5036	800.0
900.0	6.9554	5.3150	7.3257	7.7480	6.0954	6.9005	4.9670	6.5036	900.0
1000.0	6.9554	5.3150	7.3257	7.7480	6.0954	6.9005	4.9670	6.5036	1000.0
1100.0	6.9554	5.3150	7.3257	7.7480	6.0954	6.9005	4.9670	6.5036	1100.0
1200.0	6.9554	5.3150	7.3257	7.7480	6.0954	6.9005	4.9670	6.5036	1200.0
1300.0	6.9554	5.3150	7.3257	7.7480	6.0954	6.9005	4.9670	6.5036	1300.0
1400.0	6.9554	5.3150	7.3257	7.7480	6.0954	6.9005	4.9670	6.5036	1400.0
1500.0	6.9554	5.3150	7.3257	7.7480	6.0954	6.9005	4.9670	6.5036	1500.0
1600.0	6.9554	5.3150	7.3257	7.7480	6.0954	6.9005	4.9670	6.5036	1600.0
1700.0	6.9554	5.3150	7.3257	7.7480	6.0954	6.9005	4.9670	6.5036	1700.0
1800.0	6.9554	5.3150	7.3257	7.7480	6.0954	6.9005	4.9670	6.5036	1800.0

RANKINE	AIR	CO2	CO	H2O	O2	N2	A	H2	CP/CV GAMMA
0.0	1.4000	1.5972	1.3723	1.3450	1.4837	1.4045	1.6669	1.4400	0.0
100.0	1.4000	1.5972	1.3723	1.3450	1.4837	1.4045	1.6669	1.4400	100.0
200.0	1.4000	1.5972	1.3723	1.3450	1.4837	1.4045	1.6669	1.4400	200.0
300.0	1.4000	1.5972	1.3723	1.3450	1.4837	1.4045	1.6669	1.4400	300.0
400.0	1.4000	1.5972	1.3723	1.3450	1.4837	1.4045	1.6669	1.4400	400.0
500.0	1.4000	1.5972	1.3723	1.3450	1.4837	1.4045	1.6669	1.4400	500.0
600.0	1.4000	1.5972	1.3723	1.3450	1.4837	1.4045	1.6669	1.4400	600.0
700.0	1.4000	1.5972	1.3723	1.3450	1.4837	1.4045	1.6669	1.4400	700.0
800.0	1.4000	1.5972	1.3723	1.3450	1.4837	1.4045	1.6669	1.4400	800.0
900.0	1.4000	1.5972	1.3723	1.3450	1.4837	1.4045	1.6669	1.4400	900.0
1000.0	1.4000	1.5972	1.3723	1.3450	1.4837	1.4045	1.6669	1.4400	1000.0
1100.0	1.4000	1.5972	1.3723	1.3450	1.4837	1.4045	1.6669	1.4400	1100.0
1200.0	1.4000	1.5972	1.3723	1.3450	1.4837	1.4045	1.6669	1.4400	1200.0
1300.0	1.4000	1.5972	1.3723	1.3450	1.4837	1.4045	1.6669	1.4400	1300.0
1400.0	1.4000	1.5972	1.3723	1.3450	1.4837	1.4045	1.6669	1.4400	1400.0
1500.0	1.4000	1.5972	1.3723	1.3450	1.4837	1.4045	1.6669	1.4400	1500.0
1600.0	1.4000	1.5972	1.3723	1.3450	1.4837	1.4045	1.6669	1.4400	1600.0
1700.0	1.4000	1.5972	1.3723	1.3450	1.4837	1.4045	1.6669	1.4400	1700.0
1800.0	1.4000	1.5972	1.3723	1.3450	1.4837	1.4045	1.6669	1.4400	1800.0

GAS PROPERTIES

STAGNATION PARAMETERS . NO. INPUT POINTS= 11

	STREAM FRACT.	STAGNATION PSIA	STAGNATION T-R	AIR	CO2	CO	H2O	O2	N2	A	H2
				RELATIVE MASS OF SPECIE							
1	0.0	69.930	570.0	1.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0556	68.260	570.0	1.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0.1674	71.490	570.0	1.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0.2778	71.550	570.0	1.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.3855	71.350	570.0	1.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	0.5033	71.490	570.0	1.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	0.6119	71.420	570.0	1.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	0.7205	70.590	570.0	1.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	0.8354	71.060	570.0	1.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0.9426	70.420	570.0	1.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	1.0000	70.140	570.0	1.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0

GAS PROPERTIES

		PSFA	T-R	AIR	CO2	CO	H2O	O2	N2	A	H2
1	0.0	9525.518	570.0	1.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	-0.0556	9879.438	570.0	1.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0.1674	10294.559	570.0	1.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0.2776	10304.637	570.0	1.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.3855	10274.398	570.0	1.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	0.5003	10294.559	570.0	1.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	0.6119	10284.477	570.0	1.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	0.7205	10222.559	570.0	1.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	0.8354	10232.657	570.0	1.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0.9426	10140.477	570.0	1.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	1.0000	10100.156	570.0	1.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0

		PSFA	T-R	AIR	CO2	CO	H2O	O2	N2	A	H2
1	0.0	9525.518	570.0	1.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0500	9837.148	570.0	1.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0.1000	10024.152	570.0	1.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0.1500	10272.164	570.0	1.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.2000	10297.531	570.0	1.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	0.2500	10302.098	570.0	1.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	0.3000	10278.625	570.0	1.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	0.3500	10245.090	570.0	1.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	0.4000	10276.305	570.0	1.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0.4500	10285.402	570.0	1.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	0.5000	10294.502	570.0	1.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	0.5500	10290.046	570.0	1.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	0.6000	10295.547	570.0	1.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	0.6500	10262.750	570.0	1.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	0.7000	10234.242	570.0	1.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	0.7500	10225.141	570.0	1.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17	0.8000	10229.523	570.0	1.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	0.8500	10223.082	570.0	1.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19	0.9000	10177.094	570.0	1.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	0.9500	10135.273	570.0	1.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21	1.0000	10109.156	570.0	1.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0

GAS PROPERTIES

	MOL WT	GAS CON	CP COEFFICIENTS			CV COEFFICIENTS		
1	28.97	1716.	6007.	0.0	0.0	4291.	0.0	0.0
2	28.97	1716.	6007.	0.0	0.0	4291.	0.0	0.0
3	28.97	1716.	6007.	0.0	0.0	4291.	0.0	0.0
4	28.97	1716.	6007.	0.0	0.0	4291.	0.0	0.0
5	28.97	1716.	6007.	0.0	0.0	4291.	0.0	0.0
6	28.97	1716.	6007.	0.0	0.0	4291.	0.0	0.0
7	28.97	1716.	6007.	0.0	0.0	4291.	0.0	0.0
8	28.97	1716.	6007.	0.0	0.0	4291.	0.0	0.0
9	28.97	1716.	6007.	0.0	0.0	4291.	0.0	0.0
10	28.97	1716.	6007.	0.0	0.0	4291.	0.0	0.0
11	28.97	1716.	6007.	0.0	0.0	4291.	0.0	0.0
12	28.97	1716.	6007.	0.0	0.0	4291.	0.0	0.0
13	28.97	1716.	6007.	0.0	0.0	4291.	0.0	0.0
14	28.97	1716.	6007.	0.0	0.0	4291.	0.0	0.0
15	28.97	1716.	6007.	0.0	0.0	4291.	0.0	0.0
16	28.97	1716.	6007.	0.0	0.0	4291.	0.0	0.0
17	28.97	1716.	6007.	0.0	0.0	4291.	0.0	0.0
18	28.97	1716.	6007.	0.0	0.0	4291.	0.0	0.0
19	28.97	1716.	6007.	0.0	0.0	4291.	0.0	0.0
20	28.97	1716.	6007.	0.0	0.0	4291.	0.0	0.0
21	28.97	1716.	6007.	0.0	0.0	4291.	0.0	0.0

STAGNATION EVALUATION

	GAMMA	CP	CV	ENTHAL	SPEED OF SOUND
1	1.4000	6007.06	4290.75	3.424023E 06	1170.30
2	1.4000	6007.05	4290.75	3.424019E 06	1170.30
3	1.4000	6007.06	4290.75	3.424023E 06	1170.30
4	1.4000	6007.05	4290.75	3.424019E 06	1170.30
5	1.4000	6007.05	4290.75	3.424018E 06	1170.30
6	1.4000	6007.05	4290.75	3.424019E 06	1170.30
7	1.4000	6007.05	4290.75	3.424019E 06	1170.30
8	1.4000	6007.05	4290.75	3.424019E 06	1170.30
9	1.4000	6007.05	4290.75	3.424019E 06	1170.30
10	1.4000	6007.05	4290.75	3.424019E 06	1170.30
11	1.4000	6007.05	4290.75	3.424019E 06	1170.30
12	1.4000	6007.05	4290.75	3.424019E 06	1170.30
13	1.4000	6007.05	4290.75	3.424019E 06	1170.30
14	1.4000	6007.05	4290.75	3.424019E 06	1170.30
15	1.4000	6007.05	4290.75	3.424018E 06	1170.30
16	1.4000	6007.05	4290.75	3.424019E 06	1170.30
17	1.4000	6007.05	4290.75	3.424019E 06	1170.30
18	1.4000	6007.05	4290.75	3.424019E 06	1170.30
19	1.4000	6007.05	4290.75	3.424019E 06	1170.30
20	1.4000	6007.05	4290.75	3.424019E 06	1170.30
21	1.4000	6007.06	4290.75	3.424023E 06	1170.30

INDEX OF MAX. STAGNATION SOUND SPEED = 21 SPEED = 1170.30(FT/SEC) VMAX = 58.52(FT/SEC)

INLET STATIC PRESSURE DISTRIBUTION FACTORS

COMPUTED	R/RW	PRES. FACT.
1	0.0	1.00000
2	0.05000	1.00000
3	0.10000	1.00000
4	0.15000	1.00000
5	0.20000	1.00000
6	0.25000	1.00000
7	0.30000	1.00000
8	0.35000	1.00000
9	0.40000	1.00000
10	0.45000	1.00000
11	0.50000	1.00000
12	0.55000	1.00000
13	0.60000	1.00000
14	0.65000	1.00000
15	0.70000	1.00000
16	0.75000	1.00000
17	0.80000	1.00000
18	0.85000	1.00000
19	0.90000	1.00000
20	0.95000	1.00000
21	1.00000	1.00000

1	0.0	0.0025	0.0100	0.0225	0.0400	0.0625	0.0900	0.1225	0.1600	0.2025	0.2500
	0.3025	0.3600	0.4225	0.4900	0.5625	0.6400	0.7225	0.8100	0.9025	1.0000	
2	0.0	0.0025	0.0100	0.0225	0.0400	0.0625	0.0900	0.1225	0.1600	0.2025	0.2500
	0.3025	0.3600	0.4225	0.4900	0.5625	0.6400	0.7225	0.8100	0.9025	1.0000	
3	0.0	0.0025	0.0100	0.0225	0.0400	0.0625	0.0900	0.1225	0.1600	0.2025	0.2500
	0.3025	0.3600	0.4225	0.4900	0.5625	0.6400	0.7225	0.8100	0.9025	1.0000	
4	0.0	0.0025	0.0100	0.0225	0.0400	0.0625	0.0900	0.1225	0.1600	0.2025	0.2500
	0.3025	0.3600	0.4225	0.4900	0.5625	0.6400	0.7225	0.8100	0.9025	1.0000	
5	0.0	0.0025	0.0100	0.0225	0.0400	0.0625	0.0900	0.1225	0.1600	0.2025	0.2500
	0.3025	0.3600	0.4225	0.4900	0.5625	0.6400	0.7225	0.8100	0.9025	1.0000	
6	0.0	0.0025	0.0100	0.0225	0.0400	0.0625	0.0900	0.1225	0.1600	0.2025	0.2500
	0.3025	0.3600	0.4225	0.4900	0.5625	0.6400	0.7225	0.8100	0.9025	1.0000	
7	0.0	0.0025	0.0100	0.0225	0.0400	0.0625	0.0900	0.1225	0.1600	0.2025	0.2500
	0.3025	0.3600	0.4225	0.4900	0.5625	0.6400	0.7225	0.8100	0.9025	1.0000	
8	0.0	0.0025	0.0100	0.0225	0.0400	0.0625	0.0900	0.1225	0.1600	0.2025	0.2500
	0.3025	0.3600	0.4225	0.4900	0.5625	0.6400	0.7225	0.8100	0.9025	1.0000	
9	0.0	0.0025	0.0100	0.0225	0.0400	0.0625	0.0900	0.1225	0.1600	0.2025	0.2500
	0.3025	0.3600	0.4225	0.4900	0.5625	0.6400	0.7225	0.8100	0.9025	1.0000	
10	0.0	0.0025	0.0100	0.0225	0.0400	0.0625	0.0900	0.1225	0.1600	0.2025	0.2500
	0.3025	0.3600	0.4225	0.4900	0.5625	0.6400	0.7225	0.8100	0.9025	1.0000	
11	0.0	0.0025	0.0100	0.0225	0.0400	0.0625	0.0900	0.1225	0.1600	0.2025	0.2500
	0.3025	0.3600	0.4225	0.4900	0.5625	0.6400	0.7225	0.8100	0.9025	1.0000	
12	0.0	0.0025	0.0100	0.0225	0.0400	0.0625	0.0900	0.1225	0.1600	0.2025	0.2500
	0.3025	0.3600	0.4225	0.4900	0.5625	0.6400	0.7225	0.8100	0.9025	1.0000	
13	0.0	0.0025	0.0100	0.0225	0.0400	0.0625	0.0900	0.1225	0.1600	0.2025	0.2500
	0.3025	0.3600	0.4225	0.4900	0.5625	0.6400	0.7225	0.8100	0.9025	1.0000	
14	0.0	0.0025	0.0100	0.0225	0.0400	0.0625	0.0900	0.1225	0.1600	0.2025	0.2500
	0.3025	0.3600	0.4225	0.4900	0.5625	0.6400	0.7225	0.8100	0.9025	1.0000	
15	0.0	0.0025	0.0100	0.0225	0.0400	0.0625	0.0900	0.1225	0.1600	0.2025	0.2500
	0.3025	0.3600	0.4225	0.4900	0.5625	0.6400	0.7225	0.8100	0.9025	1.0000	
16	0.0	0.0025	0.0100	0.0225	0.0400	0.0625	0.0900	0.1225	0.1600	0.2025	0.2500
	0.3025	0.3600	0.4225	0.4900	0.5625	0.6400	0.7225	0.8100	0.9025	1.0000	
17	0.0	0.0025	0.0100	0.0225	0.0400	0.0625	0.0900	0.1225	0.1600	0.2025	0.2500
	0.3025	0.3600	0.4225	0.4900	0.5625	0.6400	0.7225	0.8100	0.9025	1.0000	
18	0.0	0.0025	0.0100	0.0225	0.0400	0.0625	0.0900	0.1225	0.1600	0.2025	0.2500
	0.3025	0.3600	0.4225	0.4900	0.5625	0.6400	0.7225	0.8100	0.9025	1.0000	
19	0.0	0.0025	0.0100	0.0225	0.0400	0.0625	0.0900	0.1225	0.1600	0.2025	0.2500
	0.3025	0.3600	0.4225	0.4900	0.5625	0.6400	0.7225	0.8100	0.9025	1.0000	

20	0.0	0.0025	0.0100	0.0225	0.0400	0.0625	0.0900	0.1225	0.1600	0.2025	0.2500
	0.3025	0.3600	0.4225	0.4900	0.5625	0.6400	0.7225	0.8100	0.9025	1.0000	
21	0.0	0.0025	0.0100	0.0225	0.0400	0.0625	0.0900	0.1225	0.1600	0.2025	0.2500
	0.3025	0.3600	0.4225	0.4900	0.5625	0.6400	0.7225	0.8100	0.9025	1.0000	
22	0.0	0.0025	0.0100	0.0225	0.0400	0.0625	0.0900	0.1225	0.1600	0.2025	0.2500
	0.3025	0.3600	0.4225	0.4900	0.5625	0.6400	0.7225	0.8100	0.9025	1.0000	
23	0.0	0.0025	0.0100	0.0225	0.0400	0.0625	0.0900	0.1225	0.1600	0.2025	0.2500
	0.3025	0.3600	0.4225	0.4900	0.5625	0.6400	0.7225	0.8100	0.9025	1.0000	
24	0.0	0.0025	0.0100	0.0225	0.0400	0.0625	0.0900	0.1225	0.1600	0.2025	0.2500
	0.3025	0.3600	0.4225	0.4900	0.5625	0.6400	0.7225	0.8100	0.9025	1.0000	
25	0.0	0.0025	0.0100	0.0225	0.0400	0.0625	0.0900	0.1225	0.1600	0.2025	0.2500
	0.3025	0.3600	0.4225	0.4900	0.5625	0.6400	0.7225	0.8100	0.9025	1.0000	
26	0.0	0.0025	0.0100	0.0225	0.0400	0.0625	0.0900	0.1225	0.1600	0.2025	0.2500
	0.3025	0.3600	0.4225	0.4900	0.5625	0.6400	0.7225	0.8100	0.9025	1.0000	
27	0.0	0.0025	0.0100	0.0225	0.0400	0.0625	0.0900	0.1225	0.1600	0.2025	0.2500
	0.3025	0.3600	0.4225	0.4900	0.5625	0.6400	0.7225	0.8100	0.9025	1.0000	
28	0.0	0.0025	0.0100	0.0225	0.0400	0.0625	0.0900	0.1225	0.1600	0.2025	0.2500
	0.3025	0.3600	0.4225	0.4900	0.5625	0.6400	0.7225	0.8100	0.9025	1.0000	
29	0.0	0.0025	0.0100	0.0225	0.0400	0.0625	0.0900	0.1225	0.1600	0.2025	0.2500
	0.3025	0.3600	0.4225	0.4900	0.5625	0.6400	0.7225	0.8100	0.9025	1.0000	
30	0.0	0.0025	0.0100	0.0225	0.0400	0.0625	0.0900	0.1225	0.1600	0.2025	0.2500
	0.3025	0.3600	0.4225	0.4900	0.5625	0.6400	0.7225	0.8100	0.9025	1.0000	
31	0.0	0.0025	0.0100	0.0225	0.0400	0.0625	0.0900	0.1225	0.1600	0.2025	0.2500
	0.3025	0.3600	0.4225	0.4900	0.5625	0.6400	0.7225	0.8100	0.9025	1.0000	
32	0.0	0.0025	0.0100	0.0225	0.0400	0.0625	0.0900	0.1225	0.1600	0.2025	0.2500
	0.3025	0.3600	0.4225	0.4900	0.5625	0.6400	0.7225	0.8100	0.9025	1.0000	
33	0.0	0.0025	0.0100	0.0225	0.0400	0.0625	0.0900	0.1225	0.1600	0.2025	0.2500
	0.3025	0.3600	0.4225	0.4900	0.5625	0.6400	0.7225	0.8100	0.9025	1.0000	
34	0.0	0.0025	0.0100	0.0225	0.0400	0.0625	0.0900	0.1225	0.1600	0.2025	0.2500
	0.3025	0.3600	0.4225	0.4900	0.5625	0.6400	0.7225	0.8100	0.9025	1.0000	
35	0.0	0.0025	0.0100	0.0225	0.0400	0.0625	0.0900	0.1225	0.1600	0.2025	0.2500
	0.3025	0.3600	0.4225	0.4900	0.5625	0.6400	0.7225	0.8100	0.9025	1.0000	
36	0.0	0.0025	0.0100	0.0225	0.0400	0.0625	0.0900	0.1225	0.1600	0.2025	0.2500
	0.3025	0.3600	0.4225	0.4900	0.5625	0.6400	0.7225	0.8100	0.9025	1.0000	
37	0.0	0.0025	0.0100	0.0225	0.0400	0.0625	0.0900	0.1225	0.1600	0.2025	0.2500
	0.3025	0.3600	0.4225	0.4900	0.5625	0.6400	0.7225	0.8100	0.9025	1.0000	
38	0.0	0.0025	0.0100	0.0225	0.0400	0.0625	0.0900	0.1225	0.1600	0.2025	0.2500
	0.3025	0.3600	0.4225	0.4900	0.5625	0.6400	0.7225	0.8100	0.9025	1.0000	
39	0.0	0.0025	0.0100	0.0225	0.0400	0.0625	0.0900	0.1225	0.1600	0.2025	0.2500
	0.3025	0.3600	0.4225	0.4900	0.5625	0.6400	0.7225	0.8100	0.9025	1.0000	
40	0.0	0.0025	0.0100	0.0225	0.0400	0.0625	0.0900	0.1225	0.1600	0.2025	0.2500
	0.3025	0.3600	0.4225	0.4900	0.5625	0.6400	0.7225	0.8100	0.9025	1.0000	
41	0.0	0.0025	0.0100	0.0225	0.0400	0.0625	0.0900	0.1225	0.1600	0.2025	0.2500
	0.3025	0.3600	0.4225	0.4900	0.5625	0.6400	0.7225	0.8100	0.9025	1.0000	

42	0.0	0.0025	0.0100	0.0225	0.0400	0.0625	0.0900	0.1225	0.1600	0.2025	0.2500
	0.3025	0.3600	0.4225	0.4900	0.5625	0.6400	0.7225	0.8100	0.9025	1.0000	
43	0.0	0.0025	0.0100	0.0225	0.0400	0.0625	0.0900	0.1225	0.1600	0.2025	0.2500
	0.3025	0.3600	0.4225	0.4900	0.5625	0.6400	0.7225	0.8100	0.9025	1.0000	
44	0.0	0.0025	0.0100	0.0225	0.0400	0.0625	0.0900	0.1225	0.1600	0.2025	0.2500
	0.3025	0.3600	0.4225	0.4900	0.5625	0.6400	0.7225	0.8100	0.9025	1.0000	
45	0.0	0.0025	0.0100	0.0225	0.0400	0.0625	0.0900	0.1225	0.1600	0.2025	0.2500
	0.3025	0.3600	0.4225	0.4900	0.5625	0.6400	0.7225	0.8100	0.9025	1.0000	
46	0.0	0.0025	0.0100	0.0225	0.0400	0.0625	0.0900	0.1225	0.1600	0.2025	0.2500
	0.3025	0.3600	0.4225	0.4900	0.5625	0.6400	0.7225	0.8100	0.9025	1.0000	
47	0.0	0.0025	0.0100	0.0225	0.0400	0.0625	0.0900	0.1225	0.1600	0.2025	0.2500
	0.3025	0.3600	0.4225	0.4900	0.5625	0.6400	0.7225	0.8100	0.9025	1.0000	
48	0.0	0.0025	0.0100	0.0225	0.0400	0.0625	0.0900	0.1225	0.1600	0.2025	0.2500
	0.3025	0.3600	0.4225	0.4900	0.5625	0.6400	0.7225	0.8100	0.9025	1.0000	
49	0.0	0.0025	0.0100	0.0225	0.0400	0.0625	0.0900	0.1225	0.1600	0.2025	0.2500
	0.3025	0.3600	0.4225	0.4900	0.5625	0.6400	0.7225	0.8100	0.9025	1.0000	
50	0.0	0.0025	0.0100	0.0225	0.0400	0.0625	0.0900	0.1225	0.1600	0.2025	0.2500
	0.3025	0.3600	0.4225	0.4900	0.5625	0.6400	0.7225	0.8100	0.9025	1.0000	

WEIGHT= 281.817 PTHROT= 5392.38 PANIC= 9839.15

ITERATION NO.= 0 X-STATION NO.= 1 Y-INNER = 0.0001 Y-OUTER = 2.7142 OUTPUT NO. = 1

STREAMLINE % / CP/CV	W1 / DENSITY	W2 / U	W3 / V	W4 / FLOW ANG(D)	P-STAT / P-STAG	TEMP(R) / T-STAG	MACH NO / VELOCITY
1 — 0.0	5.72995E-07	3.28202E-04	0.0	2.3955	9360.6	560.53	0.29065
1.4000	9.72995E-03	337.31	0.0	0.0	9925.9	570.00	337.31
2 — 0.25	1.32119E-03	0.44385	-9.76567E-03	3252.6	9360.6	560.60	0.28956
1.4000	9.72874E-03	335.98	-7.3916	-1.2603	9921.5	570.00	336.06
3 — 1.00	2.64042E-03	0.87651	-3.85662E-02	6499.4	9360.6	560.81	0.28624
1.4000	9.72505E-03	331.96	-14.606	-2.5194	9908.5	570.00	332.28
4 — 2.25	3.95766E-03	1.2869	-8.49330E-02	9739.4	9360.6	561.16	0.28063
1.4000	9.71900E-03	325.16	-21.460	-3.7760	9886.8	570.00	325.86
5 — 4.00	5.27193E-03	1.6629	-0.14073	12969.	9360.6	561.66	0.27256
1.4000	9.71046E-03	315.42	-27.757	-5.0291	9856.3	570.00	316.64
6 — 6.25	6.59471E-03	2.1264	-0.23413	16228.	9360.6	561.23	0.27960
1.4000	9.71790E-03	322.75	-35.502	-6.2773	9882.9	570.00	324.69
7 — 9.00	7.93540E-03	2.7711	-0.36579	19549.	9360.6	559.67	0.30275
1.4000	9.74485E-03	349.21	-46.096	-7.5196	9979.2	570.00	352.24
8 — 12.25	9.29175E-03	3.5405	-0.54523	22922.	9360.6	557.63	0.33306
1.4000	9.78057E-03	381.03	-58.679	-8.7548	10108.	570.00	385.53
9 — 16.00	1.06577E-02	4.3651	-0.76825	26329.	9360.6	555.60	0.35992
1.4000	9.81620E-03	409.57	-72.084	-9.9818	10237.	570.00	415.86
10 — 20.25	1.20100E-02	5.0559	-1.0011	29689.	9360.6	554.67	0.37173
1.4000	9.83274E-03	420.98	-83.354	-11.202	10298.	570.00	429.15
11 — 25.00	1.33459E-02	5.6058	-1.2333	32993.	9360.6	554.60	0.37256
1.4000	9.83397E-03	420.04	-92.408	-12.407	10302.	570.00	430.08
12 — 30.25	1.46787E-02	6.1232	-1.4818	36286.	9360.6	554.67	0.37177
1.4000	9.83279E-03	417.15	-100.95	-13.604	10299.	570.00	429.19
13 — 36.00	1.60065E-02	6.5933	-1.7406	39563.	9360.6	554.89	0.36895
1.4000	9.82880E-03	411.91	-108.75	-14.789	10283.	570.00	426.02
14 — 42.25	1.73389E-02	7.0915	-2.0282	42855.	9360.6	554.94	0.36839
1.4000	9.82800E-03	408.99	-116.97	-15.961	10280.	570.00	425.39
15 — 49.00	1.86790E-02	7.6414	-2.3526	46173.	9360.6	554.75	0.37076
1.4000	9.83135E-03	409.09	-124.60	-17.119	10293.	570.00	428.06
16 — 56.25	2.00111E-02	8.1189	-2.6793	49463.	9360.6	554.81	0.37004
1.4000	9.83033E-03	405.72	-133.89	-18.263	10289.	570.00	427.24
17 — 64.00	2.13322E-02	8.5021	-2.9927	52717.	9360.6	555.14	0.36584
1.4000	9.82442E-03	398.56	-140.29	-19.392	10267.	570.00	422.53
18 — 72.25	2.26420E-02	8.7855	-3.2355	55931.	9360.6	555.72	0.35850
1.4000	9.81425E-03	388.02	-145.12	-20.506	10230.	570.00	414.27
19 — 81.00	2.39721E-02	9.2206	-3.6514	59215.	9360.6	555.75	0.35800
1.4000	9.81356E-03	384.64	-152.32	-21.604	10228.	570.00	413.70
20 — 90.25	2.52666E-02	9.3025	-3.9135	62377.	9360.6	556.57	0.34729
1.4000	9.79913E-03	370.55	-154.89	-22.685	10175.	570.00	401.62
21 — 100.00	2.65403E-02	9.3196	-4.1306	65468.	9360.6	557.75	0.33139
1.4000	9.77844E-03	351.15	-154.51	-23.749	10100.	570.00	383.64

ITERATION NO.= 0 X-STATION NO.= 2 Y-INNER = 0.0001 Y-OUTER = 2.6700 OUTPUT NO. = 1

STREAMLINE & CP/CV		W1 DENSITY	W2 U	W3 V	W4 FLOW ANG(O)	P-STAT P-STAG	TEMP(R) T-STAG	MACH NO VELOCITY
1	0.0	9.68294E-07	3.44851E-04	0.0	2.3857	9297.2	559.44	0.30719
	1.4000	9.66284E-03	356.15	0.0	0.0	9925.9	570.00	356.15
2	0.25	1.29342E-03	0.45900	-1.03981E-02	3180.6	9297.2	559.51	0.30614
	1.4000	9.68163E-03	354.88	-7.3073	-1.2603	9921.6	570.00	354.94
3	1.00	2.58429E-03	0.90743	-3.95270E-02	6367.5	9297.2	559.72	0.30300
	1.4000	9.67600E-03	351.05	-15.446	-2.5194	9908.5	570.00	351.39
4	2.25	3.87443E-03	1.3351	-6.61175E-02	9541.8	9297.2	560.07	0.29769
	1.4000	9.67195E-03	344.60	-22.743	-3.7760	9886.5	570.00	345.35
5	4.00	5.16104E-03	1.7309	-0.15232	12706.	9297.2	560.57	0.29008
	1.4000	9.65344E-03	335.37	-29.513	-5.0291	9856.5	570.00	336.67
6	6.25	6.45601E-03	2.2091	-0.74300	15899.	9297.2	560.14	0.29673
	1.4000	9.67285E-03	342.18	-37.640	-6.2773	9682.9	570.00	344.26
7	9.00	7.76849E-03	2.8519	-0.37645	19152.	9297.2	558.59	0.31962
	1.4000	9.69767E-03	367.11	-48.458	-7.5196	9974.2	570.00	370.29
8	12.25	9.09631E-03	3.6143	-0.55661	22457.	9297.2	555.55	0.34765
	1.4000	9.73322E-03	397.34	-61.191	-8.7548	10108.	570.00	402.03
9	16.00	1.04335E-02	4.4303	-0.77973	25795.	9297.2	554.53	0.37351
	1.4000	9.76866E-03	424.62	-74.734	-9.9818	10237.	570.00	431.15
10	20.25	1.17574E-02	5.1203	-1.0138	29086.	9297.2	553.59	0.38493
	1.4000	9.78514E-03	435.20	-86.229	-11.200	10298.	570.00	443.95
11	25.00	1.30652E-02	5.6764	-1.2488	32323.	9297.2	553.53	0.38573
	1.4000	9.78631E-03	434.46	-95.582	-12.407	10302.	570.00	444.88
12	30.25	1.43659E-02	6.2012	-1.5007	35550.	9297.2	553.59	0.38496
	1.4000	9.75518E-03	431.54	-104.43	-13.604	10298.	570.00	443.99
13	36.00	1.56599E-02	6.6806	-1.7637	38759.	9297.2	553.82	0.38274
	1.4000	9.76121E-03	426.33	-112.55	-14.789	10283.	570.00	440.94
14	42.25	1.69742E-02	7.1861	-2.0552	41984.	9297.2	553.86	0.38169
	1.4000	9.78042E-03	423.35	-121.08	-15.961	10280.	570.00	440.33
15	49.00	1.82861E-02	7.7401	-2.3519	45235.	9297.2	553.67	0.38399
	1.4000	9.78376E-03	423.28	-130.37	-17.119	10293.	570.00	442.90
16	56.25	1.95901E-02	8.2248	-2.7142	48459.	9297.2	553.73	0.38329
	1.4000	9.78274E-03	419.85	-138.55	-18.263	10289.	570.00	442.12
17	64.00	2.06835E-02	8.6195	-3.3341	51647.	9297.2	554.06	0.37923
	1.4000	9.77685E-03	412.74	-145.28	-19.392	10267.	570.00	437.56
18	72.25	2.21657E-02	8.9192	-3.3358	54796.	9297.2	554.64	0.37214
	1.4000	9.76674E-03	402.39	-150.49	-20.506	10230.	570.00	429.61
19	81.00	2.34679E-02	9.3619	-3.7073	58013.	9297.2	554.68	0.37166
	1.4000	9.76605E-03	398.93	-157.97	-21.604	10228.	570.00	429.07
20	90.25	2.47351E-02	9.5265	-3.9822	61111.	9297.2	555.49	0.36133
	1.4000	9.75166E-03	385.16	-161.00	-22.685	10175.	570.00	417.45
21	100.00	2.59820E-02	9.5179	-4.1879	64139.	9297.2	556.67	0.34605
	1.4000	9.73110E-03	366.33	-161.18	-23.749	10100.	570.00	400.22

ITERATION NO.= 0 X-STATION NO.= 3 Y-INNER = 0.0001 Y-OUTER = 2.6258 OUTPUT NO. = 1

	STREAMLINE % / CP/CV	W1 / DENSITY	W2 / U	W3 / V	W4 / FLOW ANG(O)	P-STAT / P-STAG	TEMP(R) / T-STAG	MACH NO / VELOCITY
1	0.0	9.63058E-07	3.62111E-04	0.0	2.3748	9227.0	559.23	0.32465
	1.4000	9.63058E-03	376.00	0.0	0.0	9925.9	570.00	376.00
2	0.25	1.26516E-03	0.47417	-1.34317E-02	3119.6	9227.0	558.30	0.32367
	1.4000	9.62939E-03	374.79	-8.2454	-1.2603	9921.5	570.00	374.88
3	1.00	2.52840E-03	0.93641	-4.12902E-02	6233.6	9227.0	558.51	0.32069
	1.4000	9.62577E-03	371.15	-16.331	-2.5194	9908.5	570.00	371.51
4	2.25	3.78975E-03	1.3833	-9.12482E-02	9341.1	9227.0	559.86	0.31567
	1.4000	9.61974E-03	365.01	-24.091	-3.7760	9886.8	570.00	365.81
5	4.00	5.04823E-03	1.7985	-0.15877	12439.	9227.0	559.35	0.30850
	1.4000	9.61129E-03	356.27	-31.352	-5.0291	9856.5	570.00	357.65
6	6.25	6.31483E-03	2.2697	-0.25186	15565.	9227.0	558.53	0.31476
	1.4000	9.61865E-03	362.58	-39.884	-6.2773	9882.9	570.00	364.77
7	9.00	7.59868E-03	2.5334	-0.36721	19749.	9227.0	557.38	0.33648
	1.4000	9.64533E-03	386.05	-50.958	-7.5196	9979.2	570.00	389.39
8	12.25	8.85746E-03	2.6501	-0.55327	21985.	9227.0	555.34	0.36326
	1.4000	9.66069E-03	414.74	-63.869	-8.7546	10106.	570.00	419.62
9	16.00	1.02054E-02	4.4983	-0.75169	25252.	9227.0	553.33	0.38814
	1.4000	9.71595E-03	446.77	-77.576	-9.9818	10237.	570.00	447.55
10	20.25	1.15003E-02	5.1879	-1.0272	26474.	9227.0	557.40	0.39516
	1.4000	9.73232E-03	451.11	-89.320	-11.200	10258.	570.00	459.87
11	25.00	1.27796E-02	5.7505	-1.2651	31643.	9227.0	557.33	0.39994
	1.4000	9.73349E-03	449.97	-98.794	-12.407	10302.	570.00	460.73
12	30.25	1.40558E-02	6.2630	-1.5205	34801.	9227.0	557.39	0.39919
	1.4000	9.73237E-03	447.00	-106.17	-13.606	10298.	570.00	459.90
13	36.00	1.53273E-02	6.7720	-1.7676	37944.	9227.0	552.62	0.39656
	1.4000	9.72342E-03	441.83	-116.64	-14.769	10283.	570.00	456.97
14	42.25	1.66031E-02	7.2852	-2.0836	41101.	9227.0	557.66	0.39603
	1.4000	9.72763E-03	438.78	-125.49	-15.951	10290.	570.00	456.38
15	49.00	1.78863E-02	7.8435	-2.4158	44283.	9227.0	552.48	0.39825
	1.4000	9.73095E-03	436.52	-135.06	-17.119	10293.	570.00	458.85
16	56.25	1.91619E-02	8.3259	-2.7508	47439.	9227.0	557.53	0.39757
	1.4000	9.72994E-03	435.02	-143.56	-18.263	10289.	570.00	458.10
17	64.00	2.04270E-02	8.7423	-3.0773	50569.	9227.0	552.86	0.39365
	1.4000	9.72408E-03	427.98	-150.65	-19.392	10247.	570.00	453.72
18	72.25	2.16311E-02	9.0584	-3.3478	53642.	9227.0	553.44	0.38661
	1.4000	9.71402E-03	417.80	-156.26	-20.506	10230.	570.00	446.07
19	81.00	2.29548E-02	9.5099	-3.7655	56792.	9227.0	553.49	0.38635
	1.4000	9.71333E-03	414.24	-164.04	-21.604	10229.	570.00	445.54
20	90.25	2.41344E-02	9.6569	-4.0533	59825.	9227.0	554.29	0.37640
	1.4000	9.69703E-03	400.79	-167.53	-22.685	10175.	570.00	434.40
21	100.00	2.54143E-02	9.7211	-4.2773	62790.	9227.0	555.46	0.36173
	1.4000	9.67958E-03	392.51	-168.39	-23.749	10109.	570.00	417.90

ITERATION NO.= 3 X-STATION NO.= 4 Y-INNER = 0.0001 Y-OUTER = 2.5817 OUTPUT NO. = 1

STREAMLINE	% / CP/CV	W1 / DENSITY	W2 / U	W3 / V	W4 / FLOW ANG(D)	P-STAT / P-STAG	TEMP(R) / T-STAG	MACH NO / VELOCITY
1	0.0	9.57255E-07	3.79981E-04	0.0	2.3627	9149.3	556.89	0.34315
	1.4000	9.57255E-03	396.95	0.0	0.0	9925.9	570.00	396.95
2	0.25	1.23643E-03	0.48938	-1.07663E-02	3051.7	9149.3	556.95	0.34222
	1.4000	9.57136E-03	395.80	-8.7075	-1.2603	9921.5	570.00	395.89
3	1.00	2.47097E-03	0.96944	-4.26552E-02	6097.8	9149.3	557.16	0.33941
	1.4000	9.55777E-03	392.33	-17.263	-2.5194	9908.5	570.00	392.71
4	2.25	3.70360E-03	1.4314	-6.44745E-02	9137.5	9149.3	557.51	0.33465
	1.4000	9.56178E-03	386.49	-25.508	-3.7760	9886.8	570.00	387.33
5	4.00	4.93355E-03	1.8658	-0.16419	12168.	9149.3	558.00	0.32787
	1.4000	9.55337E-03	378.19	-33.281	-5.0291	9856.4	570.00	379.65
6	6.25	6.17143E-03	2.3701	-0.26071	15275.	9149.3	557.58	0.33379
	1.4000	9.55070E-03	384.04	-42.244	-6.2773	9852.9	570.00	386.35
7	9.00	7.42606E-03	3.0158	-0.39808	18340.	9149.3	556.03	0.35439
	1.4000	9.58721E-03	406.11	-53.606	-7.5196	9979.2	570.00	409.63
8	12.25	8.65533E-03	3.7676	-0.58021	21505.	9149.3	554.00	0.37997
	1.4000	9.62236E-03	433.29	-66.727	-8.7546	10109.	570.00	438.40
9	16.00	9.97359E-03	4.5688	-0.80411	24701.	9149.3	551.99	0.40388
	1.4000	9.65741E-03	458.09	-80.624	-9.9818	10237.	570.00	465.13
10	20.25	1.12391E-02	5.2586	-1.0412	27855.	9149.3	551.06	0.41451
	1.4000	9.67368E-03	467.89	-92.642	-11.200	10298.	570.00	476.97
11	25.00	1.24992E-02	5.8280	-1.2822	30953.	9149.3	551.00	0.41525
	1.4000	9.67484E-03	466.65	-102.66	-12.407	10302.	570.00	477.80
12	30.25	1.37365E-02	6.2696	-1.5412	34042.	9149.3	551.06	0.41454
	1.4000	9.67373E-03	463.62	-112.20	-13.604	10296.	570.00	477.01
13	36.00	1.49791E-02	6.6675	-1.8130	37116.	9149.3	551.28	0.41200
	1.4000	9.66980E-03	458.47	-121.04	-14.789	10283.	570.00	474.18
14	42.25	1.62259E-02	7.3886	-2.1131	40204.	9149.3	551.33	0.41149
	1.4000	9.66902E-03	455.36	-130.23	-15.961	10280.	570.00	473.61
15	49.00	1.74830E-02	7.9517	-2.4491	43317.	9149.3	551.14	0.41363
	1.4000	9.67231E-03	454.91	-140.11	-17.119	10293.	570.00	475.99
16	56.25	1.87265E-02	8.4518	-2.7891	46404.	9149.3	551.20	0.41297
	1.4000	9.67131E-03	451.33	-148.94	-18.263	10289.	570.00	475.27
17	64.00	1.99429E-02	8.8702	-3.1223	49457.	9149.3	551.53	0.40919
	1.4000	9.66550E-03	444.34	-156.41	-19.392	10267.	570.00	471.06
18	72.25	2.11886E-02	9.2026	-3.4418	52472.	9149.3	552.10	0.40260
	1.4000	9.65549E-03	434.33	-162.44	-20.506	10230.	570.00	463.72
19	81.00	2.24333E-02	9.6614	-3.8259	55555.	9149.3	552.14	0.40215
	1.4000	9.65481E-03	430.67	-170.55	-21.604	10228.	570.00	463.21
20	90.25	2.36447E-02	9.8720	-4.1265	58520.	9149.3	552.96	0.39259
	1.4000	9.64059E-03	417.51	-174.52	-22.685	10175.	570.00	452.52
21	100.00	2.48366E-02	9.9288	-4.3687	61420.	9149.3	554.12	0.37850
	1.4000	9.62326E-03	399.76	-175.90	-23.749	10100.	570.00	436.75

ITERATION NO.= 0 X-STATION NO.= 5 Y-INNER = 0.0001 Y-OUTER = 2.5375 OUTPUT NO. = 1

STREAMLINE & CP/CV	W1 DENSITY	W2 U	W3 V	W4 FLOW ANGLE(D)	P-STAT P-STAG	TEMP(R) T-STAG	MACH NO VELOCITY
1 0.0	9.50757E-07	3.98605E-04	0.0	2.3492	9062.5	555.37	0.36293
1.4000	9.50757E-03	419.25	0.0	0.0	9922.9	570.00	419.25
2 0.25	1.20703E-03	0.50472	-1.11039E-02	2982.2	9062.5	555.44	0.36204
1.4000	9.50638E-03	418.15	-9.1954	-1.2603	9921.6	570.00	418.26
3 1.00	2.41219E-03	1.0007	-4.40306E-02	5959.0	9062.5	555.65	0.35938
1.4000	9.53282E-03	414.85	-18.253	-2.5194	9908.5	570.00	415.25
4 2.25	3.61555E-03	1.4795	-9.76679E-02	8929.6	9062.5	556.00	0.35488
1.4000	9.49687E-03	409.29	-27.313	-3.7760	9886.8	570.00	410.15
5 4.00	4.81619E-03	1.9332	-0.17013	11891.	9062.5	556.48	0.34848
1.4000	9.48853E-03	401.41	-35.324	-5.0291	9856.4	570.00	402.96
6 6.25	6.02461E-03	2.4509	-0.26953	14879.	9062.5	556.06	0.35406
1.4000	9.49579E-03	406.81	-44.749	-6.2773	9882.9	570.00	409.26
7 9.00	7.24529E-03	3.0996	-0.40912	17923.	9062.5	554.52	0.37365
1.4000	9.52213E-03	427.54	-56.435	-7.5196	9979.2	570.00	431.24
8 12.25	8.43846E-03	3.6474	-0.59259	21015.	9062.5	552.50	0.39802
1.4000	9.55704E-03	453.25	-69.900	-8.7548	10108.	570.00	458.59
9 16.00	9.73629E-03	4.6424	-0.81706	24138.	9062.5	550.49	0.42096
1.4000	9.59185E-03	476.61	-83.919	-9.9818	10237.	570.00	484.14
10 20.25	1.09717E-02	5.3329	-1.0559	27219.	9062.5	549.56	0.43119
1.4000	9.60802E-03	466.06	-96.240	-11.200	10298.	570.00	495.50
11 25.00	1.21921E-02	5.9096	-1.3001	30248.	9062.5	549.50	0.43191
1.4000	9.60916E-03	486.76	-106.63	-12.407	10302.	570.00	496.30
12 30.25	1.34097E-02	6.4585	-1.5629	33287.	9062.5	549.56	0.43122
1.4000	9.60806E-03	481.63	-116.55	-13.604	10298.	570.00	495.53
13 36.00	1.46227E-02	6.9676	-1.8394	36270.	9062.5	549.78	0.42877
1.4000	9.60416E-03	476.49	-125.79	-14.789	10283.	570.00	492.82
14 42.25	1.58399E-02	7.4970	-2.1441	39288.	9062.5	549.83	0.42828
1.4000	9.60338E-03	473.30	-135.36	-15.961	10280.	570.00	492.27
15 49.00	1.70641E-02	8.0653	-2.4541	42330.	9052.5	549.64	0.43034
1.4000	9.60665E-03	472.64	-145.57	-17.119	10293.	570.00	494.55
16 56.25	1.82810E-02	8.5735	-2.5293	45247.	9062.5	549.70	0.42972
1.4000	9.60545E-03	468.58	-154.74	-15.263	10289.	570.00	493.86
17 64.00	1.94873E-02	9.0041	-3.1694	48330.	9062.5	550.03	0.42607
1.4000	9.55388E-03	462.04	-162.64	-19.392	10267.	570.00	489.82
18 72.25	2.[illegible]E-02	9.3533	-3.4981	51277.	9062.5	550.60	0.41973
1.4000	9.58995E-03	457.19	-169.12	-20.506	10230.	570.00	482.78
19 81.00	2.18996E-02	9.8202	-3.8888	54268.	9062.5	550.64	0.41930
1.4000	9.58927E-03	448.42	-177.57	-21.694	10229.	570.00	482.30
20 90.25	2.30521E-02	10.053	-4.2024	57187.	9062.5	551.45	0.41010
1.4000	9.57514E-03	435.55	-182.06	-22.685	10175.	570.00	472.07
21 100.00	2.42451E-02	10.142	-4.4626	60072.	9062.5	552.02	0.39661
1.4000	9.55496E-03	418.32	-184.06	-23.749	10103.	570.00	457.02

ITERATION NO. = 0 X-STATION NO. = 6 Z-INNER = 0.0201 Z-OUTER = 2.4933 OUTPUT NO. = 1

STREAMLINE & CP/CV	W1 DENSITY	W2 U	W3 V	W4 FLOW ANG(I)	P-STAT P-STAG	TEMP(R) T-STAG	MACH NO VELOCITY
1 0.0	9.43457E-07	4.18018E-04	0.0	2.3339	8965.2	553.66	0.38414
1.4000	9.43457E-03	443.07	0.0	0.0	9925.9	570.00	443.07
2 0.25	1.17591E-03	0.52022	-1.14449E-02	2911.3	8965.2	553.73	0.38330
1.4000	9.43339E-03	442.02	-9.7245	-1.2603	9921.5	570.00	442.13
3 1.00	2.35199E-03	1.0322	-4.54179E-02	5817.2	8965.2	553.94	0.38077
1.4000	9.42985E-03	436.87	-19.310	-2.5194	9908.5	570.00	439.30
4 2.25	3.52531E-03	1.5295	-0.10068	8717.0	8965.2	554.28	0.37652
1.4000	9.42395E-03	433.58	-28.617	-3.7760	9886.8	570.00	434.53
5 4.00	4.69597E-03	2.0009	-0.17608	11608.	8965.2	554.77	0.37047
1.4000	9.41567E-03	426.09	-37.496	-5.0291	9856.5	570.00	427.73
6 6.25	5.87422E-03	2.5321	-0.27954	14525.	8965.2	554.35	0.37575
1.4000	9.42283E-03	431.06	-47.416	-6.2773	9852.9	570.00	433.66
7 9.00	7.06843E-03	3.1843	-0.42033	17496.	8965.2	552.91	0.39427
1.4000	9.44902E-03	450.49	-59.465	-7.5196	9979.2	570.00	454.40
8 12.25	8.27657E-03	3.9293	-0.60512	20515.	8965.2	550.79	0.41754
1.4000	9.48366E-03	474.75	-73.112	-8.7548	10108.	570.00	480.35
9 16.00	9.49226E-03	4.7190	-0.82054	23563.	8965.2	548.80	0.43953
1.4000	9.51821E-03	497.09	-87.489	-9.9318	10237.	570.00	504.73
10 20.25	1.06578E-02	5.4107	-1.0713	26570.	8965.2	547.87	0.44938
1.4000	9.53424E-03	505.78	-100.14	-11.200	10298.	570.00	515.60
11 25.00	1.18875E-02	5.9951	-1.2189	29527.	8965.2	547.81	0.45007
1.4000	9.53538E-03	504.31	-110.95	-12.407	10302.	570.00	516.37
12 30.25	1.30749E-02	6.5527	-1.5357	32474.	8965.2	547.87	0.44940
1.4000	9.53428E-03	501.16	-121.28	-13.604	10298.	570.00	515.63
13 36.00	1.42577E-02	7.0723	-1.8671	35436.	8965.2	548.09	0.44705
1.4000	9.53041E-03	496.34	-130.95	-14.789	10283.	570.00	513.03
14 42.25	1.54445E-02	7.6103	-2.1766	38353.	8965.2	548.14	0.44658
1.4000	9.52964E-03	492.75	-140.93	-15.961	10280.	570.00	512.51
15 49.00	1.66381E-02	8.1842	-2.5207	41322.	8965.2	547.95	0.44856
1.4000	9.53283E-03	491.90	-151.50	-17.119	10293.	570.00	514.70
16 56.25	1.78246E-02	8.7009	-2.8713	44267.	8965.2	548.01	0.44796
1.4000	9.53190E-03	486.14	-161.09	-18.263	10289.	570.00	514.03
17 64.00	1.90015E-02	9.1639	-3.2187	47179.	8965.2	548.34	0.44465
1.4000	9.52617E-03	481.22	-169.39	-19.392	10267.	570.00	510.17
18 72.25	2.01581E-02	9.5098	-3.5567	50056.	8965.2	548.90	0.43836
1.4000	9.51631E-03	471.53	-176.35	-20.506	10230.	570.00	503.43
19 81.00	2.13529E-02	9.9854	-3.9542	52995.	8965.2	548.94	0.43794
1.4000	9.51564E-03	467.64	-185.18	-21.604	10228.	570.00	502.97
20 90.25	2.25059E-02	10.241	-4.2608	55825.	8965.2	549.75	0.42912
1.4000	9.50162E-03	455.05	-190.21	-22.685	10175.	570.00	493.20
21 100.00	2.36405E-02	10.362	-4.5592	58593.	8965.2	550.91	0.41620
1.4000	9.48159E-03	438.70	-192.85	-23.749	10120.	570.00	478.86

ITERATION NO.= 0 X-STATION NO.= 7 Y-INNER = 0.0001 Y-OUTER = 2.4492 OUTPUT NO. = 1

STREAMLINE %	W1	W2	W3	W4	P-STAT	TEMP(R)	MACH NO
CP/CV	DENSITY	U	V	FLOW ANG(D)	P-STAG	T-STAG	VELOCITY
1 0.0	9.35231E-07	4.38235E-04	0.0	2.3167	8855.9	551.72	0.40697
1.4000	9.35231E-03	468.58	0.0	0.0	9925.9	570.00	468.58
2 0.25	1.14603E-03	0.53587	-1.17890E-02	2838.7	8855.9	551.79	0.40618
1.4000	9.35114E-03	467.58	-10.287	-1.2603	9921.5	570.00	467.70
3 1.00	2.29026E-03	1.0640	-4.69166E-02	5672.1	8855.9	552.00	0.40379
1.4000	9.34764E-03	464.58	-20.442	-2.5194	9908.5	570.00	465.03
4 2.25	3.43278E-03	1.5775	-0.10411	8495.6	8855.9	552.35	0.39976
1.4000	9.34178E-03	459.54	-30.320	-3.7760	9886.8	570.00	460.54
5 4.00	4.57271E-03	2.0698	-0.18205	11318.	8855.9	552.83	0.39405
1.4000	9.33358E-03	452.41	-39.912	-5.0291	9856.4	570.00	454.16
6 6.25	5.72003E-03	2.6139	-0.28753	14162.	8855.9	552.41	0.39903
1.4000	9.34073E-03	456.97	-50.267	-6.2773	9882.9	570.00	459.73
7 9.00	6.88289E-03	3.2704	-0.43170	17068.	8855.9	550.88	0.41658
1.4000	9.36663E-03	475.15	-62.720	-7.5196	9979.2	570.00	479.28
8 12.25	8.05531E-03	4.0135	-0.61807	20003.	8855.9	548.87	0.43875
1.4000	9.40097E-03	497.99	-76.691	-8.7548	10108.	570.00	503.86
9 16.00	9.24405E-03	4.7985	-0.84454	22975.	8855.9	546.88	0.45980
1.4000	9.43521E-03	519.09	-91.361	-9.9818	10237.	570.00	527.07
10 20.25	1.04170E-02	5.4920	-1.0874	25907.	8855.9	545.96	0.46925
1.4000	9.45111E-03	527.22	-104.39	-11.209	10298.	570.00	537.45
11 25.00	1.15757E-02	6.0844	-1.3386	28799.	8855.9	545.89	0.46992
1.4000	9.45225E-03	525.62	-115.64	-12.407	10302.	570.00	538.19
12 30.25	1.27317E-02	6.6511	-1.6096	31664.	8855.9	545.95	0.46927
1.4000	9.45115E-03	522.41	-126.42	-13.604	10299.	570.00	537.48
13 36.00	1.38834E-02	7.1616	-1.8959	34522.	8855.9	546.18	0.46701
1.4000	9.44733E-03	517.28	-136.56	-14.789	10283.	570.00	535.00
14 42.25	1.50390E-02	7.7286	-2.2104	37395.	8855.9	546.22	0.46656
1.4000	9.44655E-03	513.90	-146.98	-15.961	10280.	570.00	534.50
15 49.00	1.62014E-02	8.3084	-2.5590	40290.	8855.9	546.03	0.46846
1.4000	9.44975E-03	517.82	-157.95	-17.119	10293.	570.00	536.59
16 56.25	1.73567E-02	8.8339	-2.9152	43162.	8855.9	546.09	0.46788
1.4000	9.44879E-03	506.96	-167.96	-18.263	10289.	570.00	535.96
17 64.00	1.85026E-02	9.2896	-3.2699	46001.	8855.9	546.42	0.46452
1.4000	9.44312E-03	502.07	-176.73	-19.392	10267.	570.00	532.26
18 72.25	1.96336E-02	9.6723	-3.6174	48806.	8855.9	546.99	0.45857
1.4000	9.43334E-03	492.51	-184.20	-20.506	10230.	570.00	525.83
19 81.00	2.07923E-02	10.157	-4.0221	51672.	8855.9	547.02	0.45827
1.4000	9.43268E-03	486.49	-193.44	-21.604	10228.	570.00	525.39
20 90.25	2.19151E-02	10.435	-4.3619	54432.	8855.9	547.83	0.44982
1.4000	9.41878E-03	476.16	-199.03	-22.685	10175.	570.00	516.08
21 100.00	2.30198E-02	10.587	-4.6561	57139.	8855.9	548.99	0.43746
1.4000	9.39592E-03	459.89	-202.35	-23.749	10100.	570.00	502.44

ITERATION NO.= 2 X-STATION NO.= 8 Y-INNER = 0.0001 Y-OUTER = 2.4050 OUTPUT NO. = 1

	STREAMLINE % / CP/CV	W1 / DENSITY	W2 / U	W3 / V	W4 / FLOW ANGLE	P-STAT / P-STAG	TEMP(R) / T-STAG	MACH NO / VELOCITY
1	0.0	9.25855E-07	4.55427E-04	0.0	2.2970	8731.9	549.50	0.43184
	1.4000	9.25855E-03	496.22	0.0	0.0	9925.9	570.00	496.22
2	0.25	1.11406E-03	0.55177	-1.21348E-02	2763.5	8731.9	549.57	0.43109
	1.4000	9.25739E-03	495.27	-10.896	-1.2603	9921.5	570.00	495.39
3	1.00	2.22640E-03	1.0963	-4.82366E-02	5522.4	8731.9	549.78	0.42883
	1.4000	9.25393E-03	492.40	-21.666	-2.5194	9908.5	570.00	492.88
4	2.25	3.33705E-03	1.6272	-0.10739	8275.3	8731.9	550.12	0.42523
	1.4000	9.24813E-03	487.60	-32.182	-3.7760	9886.8	570.00	488.66
5	4.00	4.44518E-03	2.1373	-0.18809	11020.	8731.9	550.61	0.41964
	1.4000	9.24006E-03	480.62	-42.312	-5.0291	9856.4	570.00	482.68
6	6.25	5.56251E-03	2.6947	-0.29664	13769.	8731.9	550.19	0.42434
	1.4000	9.24735E-03	484.57	-53.347	-6.2773	9892.9	570.00	487.90
7	9.00	6.69092E-03	3.3584	-0.44321	16609.	8731.9	548.66	0.44094
	1.4000	9.27273E-03	501.93	-66.255	-7.5196	9979.2	570.00	506.29
8	12.25	7.83454E-03	4.1003	-0.63144	19475.	8731.9	546.66	0.46203
	1.4000	9.30673E-03	523.36	-80.597	-8.7548	10108.	570.00	529.53
9	16.00	8.96623E-03	4.8815	-0.85915	22358.	8731.9	544.68	0.48214
	1.4000	9.34062E-03	543.22	-95.607	-9.9818	10237.	570.00	551.97
10	20.25	1.01264E-02	5.5773	-1.1343	25222.	8731.9	543.76	0.49120
	1.4000	9.35630E-03	550.77	-109.05	-11.200	10298.	570.00	561.46
11	25.00	1.12528E-02	6.1782	-1.3592	28029.	8731.9	543.70	0.49184
	1.4000	9.35746E-03	549.03	-120.79	-12.407	10302.	570.00	562.16
12	30.25	1.23766E-02	6.7544	-1.6346	30827.	8731.9	543.76	0.49122
	1.4000	9.35640E-03	545.74	-132.07	-13.604	10298.	570.00	561.49
13	36.00	1.34962E-02	7.2951	-1.9262	33611.	8731.9	543.98	0.48905
	1.4000	9.35261E-03	540.60	-142.72	-14.789	10283.	570.00	559.13
14	42.25	1.46196E-02	7.8524	-2.2458	36437.	8731.9	544.02	0.48862
	1.4000	9.35185E-03	537.12	-153.61	-15.961	10280.	570.00	558.65
15	49.00	1.57495E-02	8.4386	-2.5991	39226.	8731.9	543.84	0.49044
	1.4000	9.35504E-03	535.80	-165.03	-17.119	10293.	570.00	560.64
16	56.25	1.68726E-02	8.9733	-2.9612	42022.	8731.9	543.89	0.48989
	1.4000	9.35406E-03	531.83	-175.50	-18.261	10289.	570.00	560.04
17	64.00	1.79966E-02	9.4419	-1.3236	44786.	8731.9	544.22	0.48666
	1.4000	9.34844E-03	524.94	-184.78	-19.397	10257.	570.00	556.52
18	72.25	1.90403E-02	9.8417	-3.6839	47517.	8731.9	544.78	0.46106
	1.4000	9.33876E-03	515.52	-192.80	-20.506	10230.	570.00	550.39
19	81.00	2.02124E-02	10.335	-4.0928	50307.	8731.9	544.82	0.48068
	1.4000	9.33811E-03	511.34	-202.49	-21.604	10228.	570.00	549.98
20	90.25	2.13039E-02	10.636	-4.4460	52995.	8731.9	545.63	0.47259
	1.4000	9.32435E-03	499.20	-208.69	-22.685	10175.	570.00	541.13
21	100.00	2.23778E-02	10.819	-4.7602	55622.	8731.9	546.78	0.46080
	1.4000	9.30469E-03	483.45	-212.72	-23.749	10100.	570.00	528.18

ITERATION NO.= 0 X-STATION NO.= 9 Y-INNER = 0.0001 Y-OUTER = 2.3608 OUTPUT NO. = 1

	STREAMLINE % / CP/CV	W1 / DENSITY	W2 / U	W3 / V	W4 / FLOW ANGLE(D)	P-STAT / P-STAG	TEMP(R) / T-STAG	MACH NO / VELOCITY
1	0.0	9.15100E-07	4.81636E-04	0.0	2.2743	8590.2	546.94	0.45911
	1.4000	9.15100E-03	526.32	0.0	0.0	9925.9	570.00	526.32
2	0.25	1.08092E-03	0.56793	-1.24944E-02	2680.3	8590.2	547.01	0.45840
	1.4000	9.14966E-03	525.41	-11.559	-1.2603	9921.5	570.00	525.54
3	1.00	2.16011E-03	1.1291	-4.96782E-02	5367.5	8590.2	547.22	0.45626
	1.4000	9.14443E-03	522.68	-22.998	-2.5194	9908.5	570.00	523.19
4	2.25	3.23768E-03	1.6775	-0.11071	9043.2	8590.2	547.56	0.45268
	1.4000	9.14070E-03	518.11	-34.195	-3.7760	9886.8	570.00	519.74
5	4.00	4.31281E-03	2.2067	-0.19419	10711.	8590.2	548.04	0.44760
	1.4000	9.13267E-03	511.66	-45.026	-5.0291	9856.4	570.00	513.63
6	6.25	5.39492E-03	2.7806	-0.30587	13402.	8590.2	547.62	0.45203
	1.4000	9.13967E-03	515.41	-56.695	-6.2773	9882.9	570.00	518.52
7	9.00	6.45168E-03	3.4482	-0.45516	16143.	8590.2	546.11	0.46772
	1.4000	9.16502E-03	531.17	-70.115	-7.5196	9979.2	570.00	535.78
8	12.25	7.60122E-03	4.1895	-0.64572	18928.	8590.2	544.11	0.48774
	1.4000	9.19861E-03	551.20	-84.884	-8.7548	10109.	570.00	557.69
9	16.00	8.71963E-03	4.9680	-0.87436	21740.	8590.2	542.14	0.50692
	1.4000	9.23213E-03	569.81	-100.79	-9.9618	10237.	570.00	578.57
10	20.25	9.82487E-03	5.6666	-1.1220	24514.	8590.2	541.73	0.51558
	1.4000	9.24768E-03	576.76	-114.20	-11.200	10298.	570.00	587.96
11	25.00	1.09177E-02	6.2764	-1.3808	27242.	8590.2	541.16	0.51620
	1.4000	9.24879E-03	574.88	-126.47	-12.407	10302.	570.00	588.63
12	30.25	1.20080E-02	6.8625	-1.6607	29961.	8590.2	541.22	0.51561
	1.4000	9.24772E-03	571.49	-138.30	-13.604	10298.	570.00	587.99
13	36.00	1.30942E-02	7.4158	-1.9578	32667.	8590.2	541.44	0.51359
	1.4000	9.24397E-03	566.34	-149.51	-14.789	10283.	570.00	585.74
14	42.25	1.41942E-02	7.9918	-2.2928	35385.	8590.2	541.49	0.51312
	1.4000	9.24322E-03	562.73	-160.94	-15.961	10280.	570.00	585.29
15	49.00	1.52805E-02	8.5749	-2.6411	38124.	8590.2	541.30	0.51486
	1.4000	9.24638E-03	561.17	-172.84	-17.119	10293.	570.00	587.18
16	56.25	1.63701E-02	9.1191	-3.0093	40842.	8590.2	541.36	0.51433
	1.4000	9.24541E-03	557.06	-183.83	-18.263	10289.	570.00	586.61
17	64.00	1.74509E-02	9.6010	-3.3795	43528.	8590.2	541.68	0.51124
	1.4000	9.23985E-03	550.17	-193.66	-19.392	10267.	570.00	583.26
18	72.25	1.85224E-02	10.018	-3.7467	46183.	8590.2	542.24	0.50589
	1.4000	9.23029E-03	540.86	-202.28	-20.506	10230.	570.00	577.45
19	81.00	1.96105E-02	10.521	-4.1665	48895.	8590.2	542.28	0.50553
	1.4000	9.22964E-03	536.52	-212.46	-21.604	10228.	570.00	577.05
20	90.25	2.06694E-02	10.845	-4.5331	51507.	8590.2	543.08	0.49781
	1.4000	9.21604E-03	524.67	-219.31	-22.685	10175.	570.00	568.67
21	100.00	2.17114E-02	11.058	-4.8653	54060.	8590.2	544.23	0.48658
	1.4000	9.19561E-03	509.30	-224.09	-23.749	10100.	570.00	556.42

ITERATION NO.= 0   X-STATION NO.= 10   Y-INNER = 0.0001   Y-OUTER = 2.3167   OUTPUT NO. = 1

STREAMLINE %	W1	W2	W3	W4	P-STAT	TEMP(R)	MACH NO
CP/CV	DENSITY	U	V	FLOW ANGLE	P-STAG	T-STAG	VELOCITY
1 0.0	9.02670E-03	5.04905E-04	0.0	2.2480	8427.3	543.96	0.48926
1.4000	9.02670E-03	559.35	0.0	0.0	9925.9	570.00	559.35
2 0.25	1.04033E-03	0.56436	-1.28559E-02	2605.7	8427.3	544.03	0.45859
1.4000	9.02 [illegible]57E-03	558.48	-12.287	-1.2603	9921.6	570.00	556.61
3 1.00	2.09398E-03	1.1623	-5.11421E-02	5206.4	8427.3	544.23	0.48657
1.4000	9.02218E-03	555.87	-24.458	-2.5194	9908.5	570.00	556.41
4 2.25	3.13436E-03	1.7285	-0.11438	7801.8	8427.3	544.57	0.48319
1.4000	9.01654E-03	551.52	-35.400	-3.7763	9866.8	570.00	552.72
5 4.00	4.17477E-03	2.2768	-0.20036	10389.	8427.3	545.05	0.47841
1.4000	9.00861E-03	545.38	-47.994	-5.0291	9856.4	570.00	547.49
6 6.25	5.22224E-03	2.8657	-0.31522	13300.	8427.3	544.63	0.48258
1.4000	9.01552E-03	548.74	-63.362	-6.2773	9882.9	570.00	552.05
7 9.00	6.28368E-03	3.5398	-0.46726	15659.	8427.3	543.13	0.49739
1.4000	9.04052E-03	563.32	-74.358	-7.5196	9975.2	570.00	569.21
8 12.25	7.35742E-03	4.2819	-0.65941	18360.	8427.3	541.14	0.51636
1.4000	9.07[illegible]E-03	581.94	-89.619	-8.7548	10108.	570.00	588.80
9 16.00	5.43955E-03	5.0578	-0.89017	21087.	8427.3	539.18	0.53461
1.4000	9.10671E-03	599.30	-105.45	-9.9818	10237.	570.00	608.51
10 20.25	9.51038E-03	5.7598	-1.1404	23778.	8427.3	538.27	0.54288
1.4000	9.12206E-03	625.64	-119.92	-11.200	10298.	570.00	617.39
11 25.00	1.05682E-02	6.3789	-1.4034	26424.	8427.3	538.21	0.54346
1.4000	9.12315E-03	603.59	-132.79	-12.407	10302.	570.00	618.02
12 30.25	1.16236E-02	6.9753	-1.6580	29061.	8427.3	538.27	0.54290
1.4000	9.12210E-03	600.10	-145.22	-13.604	10298.	570.00	617.42
13 36.00	1.26751E-02	7.5406	-1.9907	31685.	8427.3	538.49	0.54092
1.4000	9.11340E-03	594.91	-157.06	-14.789	10283.	570.00	615.29
14 42.25	1.37302E-02	[illegible].1168	-2.3214	34322.	8427.3	538.53	0.54052
1.4000	9.11765E-03	[illegible]	[illegible]	-15.961	10280.	570.00	614.87
15 49.00	1.47513E-02	8.7171	-2.6849	[illegible]779.	8427.3	538.35	0.54219
1.4000	9.12377E-03	586.34	-181.52	[illegible].119	10293.	570.00	616.66
16 56.25	1.5[illegible]E-0[illegible]	[illegible].2712	-3.0595	39615.	8427.3	538.43	0.54168
1.4000	9.1[illegible]42E-0[illegible]	585.08	-193.07	-1[illegible].263	10289.	570.00	616.11
17 64.00	1.6592[illegible]E-02	9.766[illegible]	-3.4379	42221.	8427.3	538.73	0.53874
1.4000	9.1143[illegible]E-03	578.17	-203.52	-19.392	10267.	570.00	612.95
18 72.25	1.7929[illegible]E-02	10.2[illegible]	-3.8157	44796.	8427.3	539.29	0.53363
1.4000	9.1049[illegible]E-03	568.96	-212.79	-20.506	10230.	570.00	607.45
19 81.00	1.89627E-02	10.714	-4.2429	47426.	8427.3	539.32	0.53328
1.4000	9.10426E-03	566.43	-223.51	-21.604	10229.	570.00	607.07
20 90.25	2.00078E-02	11.060	-4.6232	49960.	8427.3	540.12	0.52593
1.4000	9.09085E-03	552.80	-231.07	-22.685	10175.	570.00	599.15
21 100.00	2.10164E-02	11.304	-4.9735	52437.	8427.3	541.26	0.51525
1.4000	9.07169E-03	537.84	-236.65	-23.749	10100.	570.00	587.60

ITERATION NO.= 0 X-STATION NO.= 11 Y-INNER = 0.0001 Y-OUTER = 2.2725 OUTPUT NO. = 1

STREAMLINE # / CP/CV	W1 / DENSITY	W2 / U	W3 / V	W4 / FLOW ANG(O)	P-STAT / P-STAG	TEMP(R) / T-STAG	MACH NO / VELOCITY
1 0.0	8.84035E-07	5.29447E-04	0.0	2.2170	8236.7	540.41	0.52320
1.4000	8.88035E-03	596.20	0.0	0.0	9925.9	570.00	596.20
2 0.25	1.00975E-03	0.60118	-1.37259E-02	2520.7	8236.7	540.48	0.52257
1.4000	8.87925E-03	595.37	-13.098	-1.2603	9921.6	570.00	595.52
3 1.00	2.01785E-03	1.1964	-5.26403E-02	5036.6	8236.7	540.68	0.52067
1.4000	8.87592E-03	592.89	-26.087	-2.5194	9908.5	570.00	593.47
4 2.25	3.02444E-03	1.7806	-0.11782	7547.4	8236.7	541.02	0.51749
1.4000	8.87036E-03	588.75	-38.857	-3.7760	9886.8	570.00	590.03
5 4.00	4.02874E-03	2.3484	-0.20666	10050.	8236.7	541.50	0.51300
1.4000	8.86256E-03	582.91	-51.296	-5.0291	9856.5	570.00	585.16
6 6.25	5.02957E-03	2.9524	-0.32478	12576.	8236.7	541.08	0.51692
1.4000	8.86936E-03	585.68	-64.446	-6.2773	9952.9	570.00	589.41
7 9.00	6.05408E-03	3.6340	-0.47968	15148.	8236.7	539.59	0.53086
1.4000	8.89396E-03	595.27	-79.103	-7.5196	9975.2	570.00	604.47
8 12.25	7.10054E-03	4.3773	-0.67411	17761.	8236.7	537.62	0.54879
1.4000	8.92656E-03	616.48	-94.937	-8.7548	10108.	570.00	623.74
9 16.00	8.14433E-03	5.1516	-0.90668	20399.	8236.7	535.67	0.56611
1.4000	8.95905E-03	632.54	-111.33	-9.9819	10237.	570.00	642.26
10 20.25	9.17769E-03	5.8576	-1.1599	23001.	8236.7	534.76	0.57397
1.4000	8.97417E-03	638.24	-126.37	-11.200	10298.	570.00	650.63
11 25.00	1.01986E-02	6.4864	-1.4270	25561.	8236.7	534.72	0.57452
1.4000	8.97525E-03	636.01	-139.92	-12.407	10302.	570.00	651.22
12 30.25	1.12170E-02	7.0926	-1.7167	28112.	8236.7	534.76	0.57400
1.4000	8.97421E-03	632.40	-153.04	-13.604	10298.	570.00	650.65
13 36.00	1.22317E-02	7.6712	-2.0252	30651.	8236.7	534.98	0.57211
1.4000	8.97057E-03	627.16	-165.57	-14.789	10283.	570.00	648.65
14 42.25	1.32499E-02	8.2561	-2.3618	33201.	8236.7	535.02	0.57173
1.4000	8.96994E-03	623.26	-178.25	-15.961	10280.	570.00	648.24
15 49.00	1.42739E-02	8.8661	-2.7307	35771.	8236.7	534.94	0.57332
1.4000	8.97290E-03	621.14	-191.31	-17.119	10293.	570.00	649.93
16 56.25	1.52919E-02	9.4306	-3.1121	38321.	8236.7	534.90	0.57284
1.4000	8.97197E-03	616.71	-203.51	-18.263	10289.	570.00	649.42
17 64.00	1.63014E-02	9.9400	-3.4989	40842.	8236.7	535.22	0.57003
1.4000	8.96659E-03	609.76	-214.64	-19.392	10267.	570.00	646.43
18 72.25	1.73023E-02	10.392	-3.8867	43333.	8236.7	535.77	0.56517
1.4000	8.95730E-03	600.63	-224.63	-20.506	10230.	570.00	641.26
19 81.00	1.83187E-02	10.916	-4.2227	45877.	8236.7	535.81	0.56486
1.4000	8.95666E-03	595.89	-235.97	-21.604	10228.	570.00	640.91
20 90.25	1.93079E-02	11.265	-4.7169	48329.	8236.7	536.60	0.55787
1.4000	8.94347E-03	584.45	-246.30	-22.685	10175.	570.00	633.46
21 100.00	2.02812E-02	11.558	-5.0856	50725.	8236.7	537.73	0.54774
1.4000	8.92461E-03	565.89	-250.75	-23.749	10100.	570.00	622.62

ITERATION NO.= 0 X-STATION NO.= 12 Y-INNER = 0.0001 Y-OUTER = 2.7284 OUTPUT NO. = 1

	STREAMLINE %	W1	W2	W3	W4	P-STAT	TEMP(R)	MACH NO
	CP/CV	DENSITY	U	V	FLOW ANG(D)	P-STAG	T-STAG	VELOCITY
1	0.0	8.70569E-07	5.55284E-04	0.0	2.1799	8010.7	536.14	0.56197
	1.4000	8.70569E-03	637.84	0.0	0.0	9925.9	570.00	637.84
2	0.25	9.76694E-04	0.61838	-1.36044E-02	2439.4	8010.7	536.20	0.56138
	1.4000	8.70460E-03	637.05	-14.015	-1.2603	9921.6	570.00	637.21
3	1.00	1.93979E-03	1.2312	-5.41715E-02	4856.0	8010.7	536.40	0.55960
	1.4000	8.70134E-03	634.69	-27.926	-2.5194	9908.9	570.00	635.31
4	2.25	2.93743E-03	1.8339	-0.12133	7276.7	8010.7	536.74	0.55662
	1.4000	8.69589E-03	630.75	-41.629	-3.7760	9886.8	570.00	632.12
5	4.00	3.87287E-03	2.4213	-0.21308	9689.9	8010.7	537.21	0.55241
	1.4000	8.68825E-03	625.20	-55.018	-5.0291	9856.4	570.00	627.62
6	6.25	4.24459E-03	3.0412	-0.33454	12125.	8010.7	535.80	0.55608
	1.4000	8.69491E-03	627.76	-69.053	-6.2773	9882.9	570.00	631.55
7	9.00	5.82945E-03	3.7306	-0.49244	14604.	8010.7	535.32	0.56916
	1.4000	8.71902E-03	639.96	-84.475	-7.5196	9979.2	570.00	645.51
8	12.25	6.62582E-03	4.4759	-0.68929	17123.	8010.7	533.36	0.58606
	1.4000	8.75099E-03	655.73	-100.98	-8.7548	10108.	570.00	663.46
9	16.00	7.82922E-03	5.2491	-0.92384	19666.	8010.7	531.43	0.60243
	1.4000	8.78286E-03	670.45	-118.00	-9.9618	10237.	570.00	680.76
10	20.25	8.82259E-03	5.9595	-1.1800	22175.	8010.7	530.53	0.60989
	1.4000	8.79766E-03	675.48	-133.75	-11.203	10298.	570.00	688.60
11	25.00	9.80395E-03	6.5986	-1.4517	24643.	8010.7	530.47	0.61041
	1.4000	8.79871E-03	673.06	-148.07	-12.407	10302.	570.00	689.19
12	30.25	1.07830E-02	7.2171	-1.7465	27103.	8010.7	530.53	0.60991
	1.4000	8.79770E-03	669.30	-161.97	-13.604	10298.	570.00	688.62
13	36.00	1.17584E-02	7.8075	-2.0612	29550.	8010.7	530.74	0.60812
	1.4000	8.79413E-03	663.99	-175.29	-14.789	10283.	570.00	686.74
14	42.25	1.27372E-02	8.4053	-2.4039	32009.	8010.7	530.79	0.60776
	1.4000	8.79341E-03	659.90	-188.73	-15.961	10280.	570.00	686.36
15	49.00	1.37216E-02	9.0215	-2.7786	34487.	8010.7	530.61	0.60927
	1.4000	8.79642E-03	657.47	-202.50	-17.119	10293.	570.00	687.95
16	56.25	1.47001E-02	9.5968	-3.1669	36945.	8010.7	530.66	0.60891
	1.4000	8.79550E-03	652.84	-215.44	-18.263	10289.	570.00	687.46
17	64.00	1.56707E-02	10.121	-3.5624	39376.	8010.7	530.98	0.60615
	1.4000	8.79021E-03	645.83	-227.33	-19.392	10267.	570.00	684.67
18	72.25	1.56326E-02	10.591	-3.9610	41777.	8010.7	531.53	0.60155
	1.4000	8.78112E-03	636.75	-238.14	-20.506	10230.	570.00	679.82
19	81.00	1.76099E-02	11.125	-4.4056	44230.	8010.7	531.57	0.60123
	1.4000	8.78049E-03	631.76	-250.18	-21.604	10228.	570.00	679.49
20	90.25	1.85608E-02	11.517	-4.8141	46594.	8010.7	532.35	0.59463
	1.4000	8.76756E-03	620.50	-259.37	-22.685	10175.	570.00	672.52
21	100.00	1.94964E-02	11.821	-5.2012	48905.	8010.7	533.48	0.58507
	1.4000	8.74908E-03	606.31	-266.78	-23.749	10100.	570.00	662.41

ITERATION NO.= 0 X-STATION NO.= 15 Y-INNER = 0.0001 Y-OUTER = 2.1842 OUTPUT NO. = 1

	STREAMLINE % CP/CV	W1 DENSITY	W2 U	W5 V	W4 FLOW ANG(D)	P-STAT P-STAG	TEMP(R) T-STAG	MACH NO VELOCITY
1	0.0	8.49062E-07	5.82684E-04	0.0	2.1337	7735.1	530.80	0.60767
	1.4000	8.49062E-05	686.27	0.0	0.0	9925.9	570.00	686.27
2	0.25	9.27951E-04	0.63613	-1.39949E-02	2351.8	7755.1	530.87	0.60712
	1.4000	8.48956E-03	685.52	-15.082	-1.2603	9921.6	570.00	685.69
3	1.00	1.85456E-03	1.2670	-5.57500E-02	4659.2	7735.1	531.06	0.60546
	1.4000	8.48538E-03	685.28	-50.064	-2.5194	9908.5	570.00	685.94
4	2.25	2.77937E-03	1.8887	-0.12465	6961.7	7755.1	551.40	0.60268
	1.4000	8.48107E-03	679.53	-44.949	-5.7760	9886.8	570.00	681.01
5	4.00	3.70229E-03	2.4963	-0.21968	9297.1	7735.1	531.86	0.59875
	1.4000	5.47362E-05	674.27	-59.356	-5.0291	9856.4	570.00	676.88
6	6.25	4.63120E-05	3.1526	-0.34458	11633.	7755.1	531.46	0.60218
	1.4000	8.48011E-03	676.40	-74.404	-6.2773	9882.9	570.00	680.48
7	9.00	5.57264E-05	3.8505	-0.50565	14012.	7735.1	529.99	0.61440
	1.4000	8.50365E-05	687.37	-90.735	-7.5196	9979.2	570.00	693.34
8	12.25	6.52516E-03	4.5783	-0.70506	16429.	7735.1	528.05	0.63024
	1.4000	8.55481E-03	701.64	-106.05	-8.7548	10108.	570.00	709.91
9	16.00	7.48435E-05	5.3510	-0.94177	18868.	7735.1	526.14	0.64564
	1.4000	8.56589E-05	714.95	-125.83	-9.9818	10237.	570.00	725.94
10	20.25	8.43358E-03	6.0663	-1.2011	21275.	7735.1	525.25	0.65267
	1.4000	8.58032E-03	719.27	-142.41	-11.200	10298.	570.00	755.23
11	25.00	9.37211E-03	6.7161	-1.4775	25642.	7755.1	525.19	0.65517
	1.4000	8.58135E-05	716.61	-157.65	-12.407	10302.	570.00	735.74
12	30.25	1.03080E-02	7.3463	-1.7778	26002.	7735.1	525.25	0.65269
	1.4000	8.55036E-05	712.69	-172.47	-13.604	10298.	570.00	735.25
13	36.00	1.12405E-02	7.5501	-2.0988	28350.	7755.1	525.46	0.65100
	1.4000	8.57628E-05	737.27	-166.72	-14.789	10285.	570.00	751.50
14	42.25	1.21761E-02	8.5594	-2.4490	30709.	7755.1	525.50	0.65067
	1.4000	8.57618E-03	702.97	-201.05	-15.961	10280.	570.00	731.15
15	49.00	1.31172E-02	9.1842	-2.8287	35087.	7725.1	525.52	0.65209
	1.4000	8.57911E-03	700.16	-215.65	-17.119	10293.	570.00	732.62
16	56.25	1.40526E-02	9.7737	-3.2243	35445.	7755.1	525.38	0.65165
	1.4000	8.57821E-03	695.29	-229.45	-18.263	10289.	570.00	732.17
17	64.00	1.45804E-02	10.209	-3.6289	37777.	7735.1	525.70	0.64915
	1.4000	8.57596E-05	688.19	-242.24	-19.392	10267.	570.00	729.58
18	72.25	1.59001E-02	10.798	-4.0386	40081.	7735.1	526.24	0.64481
	1.4000	8.56418E-03	679.13	-254.00	-20.506	10230.	570.00	725.08
19	81.00	1.68342E-02	11.344	-4.4922	47435.	7735.1	526.28	0.64451
	1.4000	8.56359E-03	673.86	-266.85	-21.604	10228.	570.00	724.77
20	90.25	1.77432E-02	11.759	-4.9153	44703.	7735.1	527.05	0.63629
	1.4000	8.55097E-05	652.74	-277.02	-22.685	10175.	570.00	718.31
21	100.00	1.86576E-02	12.094	-5.3214	46921.	7735.1	528.17	0.62951
	1.4000	8.53294E-03	646.95	-285.52	-23.749	10109.	570.00	708.94

ITERATION NO. = 0   X-STATION NO. = 14   Y-INNER = 0.0001   Y-OUTER = 2.1400   OUTPUT NO. = 1

STREAMLINE & CP/CV		W1 DENSITY	W2 U	W3 V	W4 FLOW ANGLE	P-STAT P-STAG	TEMP(R) T-STAG	MACH NO VELOCITY
1	0.0	8.21459E-07	6.11817E-06	0.0	2.0742	7385.3	523.83	0.66387
	1.4000	8.21459E-03	744.79	0.0	0.0	9925.9	570.00	744.79
2	0.25	8.79632E-04	0.65452	-1.43994E-02	2220.9	7385.3	523.89	0.66339
	1.4000	8.21356E-03	744.08	-16.370	-1.2603	9921.6	570.00	744.26
3	1.00	1.75778E-03	1.3042	-5.73847E-02	4437.6	7385.3	524.09	0.66181
	1.4000	8.21046E-03	741.96	-32.646	-2.5194	9908.5	570.00	742.67
4	2.25	2.63401E-03	1.9454	-0.12960	6649.7	7385.3	524.42	0.65923
	1.4000	8.20535E-03	738.41	-48.735	-3.7760	9886.8	570.00	740.01
5	4.00	3.50946E-03	2.5739	-0.22651	8854.9	7385.3	524.88	0.65560
	1.4000	8.19814E-03	733.43	-64.541	-5.0291	9856.4	570.00	736.26
6	6.25	4.38598E-03	3.2271	-0.35498	11080.	7385.3	524.48	0.65877
	1.4000	8.20443E-03	735.10	-82.867	-6.2773	9882.9	570.00	739.54
7	9.00	5.28242E-03	3.9342	-0.51931	13345.	7385.3	523.03	0.67011
	1.4000	8.22717E-03	744.77	-98.309	-7.5196	9979.2	570.00	751.23
8	12.25	6.18528E-03	4.6848	-0.72147	15646.	7385.3	521.12	0.68485
	1.4000	8.25134E-03	757.42	-116.64	-8.7548	10108.	570.00	766.35
9	16.00	7.09452E-03	5.4572	-0.96046	17969.	7385.3	519.23	0.69924
	1.4000	8.28741E-03	769.21	-135.38	-9.9815	10237.	570.00	781.33
10	20.25	7.99468E-03	6.1776	-1.2232	20261.	7385.3	518.35	0.70582
	1.4000	8.30137E-03	772.72	-153.00	-11.200	10298.	570.00	787.72
11	25.00	8.88394E-03	6.8387	-1.5045	22516.	7385.3	518.29	0.70629
	1.4000	8.30237E-03	769.78	-169.35	-12.407	10302.	570.00	788.19
12	30.25	9.77112E-03	7.4811	-1.8104	24764.	7385.3	518.35	0.70584
	1.4000	8.30141E-03	765.64	-185.28	-13.604	10298.	570.00	787.74
13	36.00	1.06550E-02	8.0988	-2.1381	27000.	7385.3	518.56	0.70426
	1.4000	8.29504E-03	760.09	-200.66	-14.789	10283.	570.00	786.13
14	42.25	1.15419E-02	8.7201	-2.4940	29247.	7385.3	518.60	0.70395
	1.4000	8.29737E-03	755.52	-216.08	-15.961	10280.	570.00	785.81
15	49.00	1.24339E-02	9.3539	-2.8810	31511.	7385.3	518.43	0.70528
	1.4000	8.30020E-03	752.29	-231.70	-17.119	10293.	570.00	787.16
16	56.25	1.33206E-02	9.9521	-3.2842	33757.	7385.3	518.48	0.70487
	1.4000	8.29934E-03	747.12	-246.55	-18.263	10289.	570.00	786.75
17	64.00	1.42001E-02	10.506	-3.6982	35970.	7385.3	518.79	0.70252
	1.4000	8.29435E-03	739.87	-260.43	-19.392	10267.	570.00	784.36
18	72.25	1.50719E-02	11.015	-4.1194	38173.	7385.3	519.33	0.69846
	1.4000	8.28576E-03	730.80	-273.32	-20.506	10230.	570.00	780.24
19	81.00	1.59573E-02	11.572	-4.5824	40414.	7385.3	519.37	0.69819
	1.4000	8.28518E-03	725.17	-287.17	-21.604	10228.	570.00	779.95
20	90.25	1.68190E-02	12.011	-5.0207	42574.	7385.3	520.13	0.69237
	1.4000	8.27295E-03	714.15	-298.52	-22.685	10175.	570.00	774.03
21	100.00	1.76649E-02	12.378	-5.4466	44687.	7385.3	521.23	0.68399
	1.4000	8.25554E-03	700.64	-308.26	-23.749	10100.	570.00	765.46

ITERATION NO.= 0 X-STATION NO.= 15 Y-INNER = 0.0001 Y-OUTER = 2.0959 OUTPUT NO. = 1

	STREAMLINE % / CP/CV	W1 / DENSITY	W2 / U	W3 / V	W4 / FLOW ANG(D)	P-STAT / P-STAG	TEMP(R) / T-STAG	MACH NO / VELOCITY
1	0.0	7.82979E-07	6.42967E-04	0.0	1.9904	6905.6	513.87	0.73901
	1.4000	7.82979E-03	821.18	0.0	0.0	9925.9	570.00	821.18
2	0.25	9.21165E-04	0.67378	-1.48230E-02	2387.4	6905.6	513.94	0.73854
	1.4000	7.82882E-03	820.51	-18.051	-1.2603	9921.6	570.00	820.71
3	1.00	1.64393E-03	1.3431	-5.90966E-02	4170.6	6905.6	514.13	0.73719
	1.4000	7.82588E-03	818.50	-36.014	-2.5194	9908.5	570.00	819.29
4	2.25	2.45545E-03	2.0048	-0.13232	6249.7	6905.6	514.45	0.73477
	1.4000	7.82098E-03	815.16	-53.800	-3.7760	9886.8	570.00	816.93
5	4.00	3.27615E-03	2.6552	-0.23366	8322.4	6905.6	514.90	0.73145
	1.4000	7.81411E-03	810.46	-71.321	-5.0291	9856.4	570.00	813.60
6	6.25	4.05812E-03	3.3261	-0.36587	10413.	6905.6	514.51	0.73435
	1.4000	7.82010E-03	811.61	-89.277	-6.2773	9882.9	570.00	816.50
7	9.00	4.97123E-03	4.0426	-0.53362	12542.	6905.6	513.09	0.74473
	1.4000	7.84179E-03	819.80	-108.21	-7.5196	9975.2	570.00	826.91
8	12.25	5.77406E-03	4.7960	-0.73859	14704.	6905.6	511.21	0.75828
	1.4000	7.87054E-03	830.62	-127.92	-8.7548	10108.	570.00	840.41
9	16.00	6.62285E-03	5.5675	-0.97987	16887.	6905.6	509.35	0.77155
	1.4000	7.89921E-03	840.65	-147.95	-9.9818	10237.	570.00	853.57
10	20.25	7.46319E-03	6.2930	-1.2460	19041.	6905.6	508.50	0.77764
	1.4000	7.91251E-03	843.20	-166.95	-11.202	10295.	570.00	859.57
11	25.00	8.29330E-03	6.9657	-1.5324	21159.	6905.6	508.44	0.77807
	1.4000	7.91346E-03	839.92	-184.78	-12.437	10302.	570.00	860.00
12	30.25	9.12150E-03	7.6208	-1.8442	23277.	6905.6	505.50	0.77766
	1.4000	7.91255E-03	835.48	-202.19	-13.604	10295.	570.00	859.59
13	36.00	9.94662E-03	8.2529	-2.1798	25373.	6905.6	508.79	0.77619
	1.4000	7.90934E-03	829.72	-219.05	-14.769	10283.	570.00	858.15
14	42.25	1.07746E-02	8.8868	-2.5416	27494.	6905.6	509.74	0.77590
	1.4000	7.90873E-03	824.79	-235.89	-15.961	10280.	570.00	857.86
15	49.00	1.16073E-02	9.5297	-2.9352	29612.	6905.6	509.57	0.77713
	1.4000	7.91140E-03	821.01	-252.87	-17.119	10293.	570.00	859.07
16	56.25	1.24350E-02	10.140	-3.3462	31723.	6905.6	506.62	0.77675
	1.4000	7.91057E-03	815.45	-269.10	-18.263	10289.	570.00	858.70
17	64.00	1.32560E-02	10.710	-3.7701	33819.	6905.6	508.93	0.77458
	1.4000	7.90582E-03	807.97	-284.40	-19.392	10267.	570.00	856.56
18	72.25	1.40659E-02	11.239	-4.2035	35873.	6905.6	509.46	0.77083
	1.4000	7.89763E-03	798.81	-298.76	-20.506	10230.	570.00	852.85
19	81.00	1.48964E-02	11.809	-4.6762	37979.	6905.6	509.49	0.77058
	1.4000	7.83708E-03	792.71	-313.91	-21.604	10228.	570.00	852.60
20	90.25	1.57306E-02	12.274	-5.1305	40010.	6905.6	510.25	0.76521
	1.4000	7.85544E-03	781.74	-326.77	-22.685	10175.	570.00	847.29
21	100.00	1.64923E-02	12.675	-5.5768	41996.	6905.6	511.32	0.75748
	1.4000	7.56982E-03	768.51	-338.15	-23.748	10100.	570.00	839.62

ITERATION NO.= 0 X-STATION NO.= 16 Y-INNER = 0.0001 Y-OUTER = 2.0517 OUTPUT NO. = 1

STREAMLINE %		W1	W2	W3	W4	P-STAT	TEMP(R)	MACH NO
	CP/CV	DENSITY	U	V	FLOW ANG(D)	P-STAG	T-STAG	VELOCITY
1	0.0	7.10740E-07	6.77561E-04	0.0	1.8306	6030.4	494.39	0.87470
	1.4000	7.10740E-03	953.32	0.0	0.0	9925.9	570.00	953.32
2	0.25	7.29697E-04	0.69518	-1.52939E-02	1879.3	6030.4	494.42	0.87428
	1.4000	7.10652E-03	952.70	-20.959	-1.2603	9921.6	570.00	952.93
3	1.00	1.45814E-03	1.3864	-6.10036E-02	3754.9	6030.4	494.60	0.87304
	1.4000	7.10385E-03	950.83	-41.837	-2.5194	9905.5	570.00	951.75
4	2.25	2.18549E-03	2.0713	-0.13470	5626.7	6030.4	494.91	0.87098
	1.4000	7.09940E-03	947.74	-62.551	-3.7760	9885.5	570.00	949.80
5	4.00	2.91118E-03	2.7464	-0.24168	7492.9	6030.4	495.35	0.86807
	1.4000	7.09317E-03	943.40	-83.019	-5.0291	9856.5	570.00	947.06
6	6.25	3.64159E-03	3.4368	-0.37804	9375.3	6030.4	494.57	0.87060
	1.4000	7.09961E-03	943.75	-103.81	-6.2773	9982.9	570.00	949.45
7	9.00	4.38188E-03	4.1620	-0.54739	11291.	6030.4	493.60	0.87973
	1.4000	7.11829E-03	949.83	-125.38	-7.5196	9979.2	570.00	958.07
8	12.25	5.13081E-03	4.9154	-0.75697	13237.	6030.4	491.80	0.89168
	1.4000	7.14439E-03	958.01	-147.53	-8.7548	10108.	570.00	969.31
9	16.00	5.88504E-03	5.6810	-0.99999	15201.	6030.4	490.01	0.90343
	1.4000	7.17041E-03	965.46	-159.92	-9.9818	10237.	570.00	980.30
10	20.25	6.63173E-03	6.4101	-1.2692	17139.	6030.4	489.19	0.90884
	1.4000	7.18249E-03	966.57	-191.38	-11.200	10298.	570.00	985.34
11	25.00	7.36939E-03	7.0943	-1.5608	19046.	6030.4	489.13	0.90922
	1.4000	7.16335E-03	962.68	-211.79	-12.407	10302.	570.00	985.70
12	30.25	8.10532E-03	7.7625	-1.8785	20948.	6030.4	489.18	0.90886
	1.4000	7.18252E-03	957.71	-231.77	-13.604	10298.	570.00	985.35
13	36.00	8.83853E-03	8.4102	-2.2203	22840.	6030.4	489.38	0.90755
	1.4000	7.17961E-03	951.54	-251.21	-14.789	10283.	570.00	984.14
14	42.25	9.57423E-03	9.0569	-2.5903	24740.	6030.4	489.42	0.90729
	1.4000	7.17903E-03	945.97	-270.55	-15.961	10280.	570.00	983.90
15	49.00	1.03142E-02	9.7086	-2.9902	26655.	6030.4	489.26	0.90839
	1.4000	7.18148E-03	941.28	-289.92	-17.119	10293.	570.00	984.92
16	56.25	1.10497E-02	10.332	-3.4094	28555.	6030.4	489.31	0.90805
	1.4000	7.18073E-03	935.01	-308.55	-18.263	10289.	570.00	984.61
17	64.00	1.17792E-02	10.920	-3.8438	30434.	6030.4	489.60	0.90612
	1.4000	7.17641E-03	927.06	-326.32	-19.392	10267.	570.00	982.81
18	72.25	1.25324E-02	11.473	-4.2907	32292.	6030.4	490.11	0.90279
	1.4000	7.16898E-03	917.63	-343.19	-20.506	10230.	570.00	979.70
19	81.00	1.32369E-02	12.055	-4.7736	34189.	6030.4	490.14	0.90257
	1.4000	7.16540E-03	910.69	-360.63	-21.604	10228.	570.00	979.49
20	90.25	1.39516E-02	12.551	-5.2464	36017.	6030.4	490.87	0.89781
	1.4000	7.15792E-03	899.62	-376.04	-22.685	10175.	570.00	975.05
21	100.00	1.46549E-02	12.993	-5.7170	37806.	6030.4	491.90	0.89097
	1.4000	7.14283E-03	886.61	-390.11	-23.749	10100.	570.00	968.64

ITERATION NO.= 0 X-STATION NO.= 17 Y-INNER = 0.0001 Y-OUTER = 2.0075 OUTPUT NO. = 1

	STREAMLINE % / CP/CV	W1 / DENSITY	W2 / U	W3 / V	W4 / FLOW ANG(D)	P-STAT / P-STAG	TEMP(R) / T-STAG	MACH NO / VELOCITY
1	0.0	6.56179E-07	6.46918E-04	0.0	1.7075	5392.4	479.81	0.97583
	1.4000	6.56179E-03	1046.7	0.0	0.0	9925.9	570.00	1046.7
2	0.25	6.55181E-04	0.58970	-7.12596E-03	1715.3	5392.4	479.87	0.97545
	1.4000	6.56097E-03	1046.3	-10.810	-0.59196	9921.5	570.00	1046.3
3	1.00	1.31721E-03	1.3766	-2.86462E-02	3477.2	5392.4	479.05	0.97431
	1.4000	6.55852E-03	1045.1	-21.596	-1.1839	9908.5	570.00	1045.3
4	2.25	1.97425E-03	2.0593	-6.35307E-02	5135.6	5392.4	479.35	0.97239
	1.4000	6.55461E-03	1043.1	-32.332	-1.7756	9886.8	570.00	1043.6
5	4.00	2.62981E-03	2.7357	-0.11306	6839.0	5392.4	479.77	0.96970
	1.4000	6.54665E-03	1040.3	-42.992	-2.3666	9856.4	570.00	1041.2
6	6.25	3.28962E-03	3.4274	-0.17706	8557.0	5392.4	479.40	0.97205
	1.4000	6.55368E-03	1041.9	-53.824	-2.9573	9862.9	570.00	1043.3
7	9.00	3.95815E-03	4.1518	-0.25738	10306.	5392.4	478.08	0.98049
	1.4000	6.57184E-03	1048.9	-65.022	-3.5473	9979.2	570.00	1050.9
8	12.25	4.63490E-03	4.9040	-0.35468	12081.	5392.4	476.33	0.99158
	1.4000	6.59594E-03	1058.1	-76.523	-4.1366	10108.	570.00	1060.8
9	16.00	5.31623E-03	5.6720	-0.46883	13872.	5392.4	474.60	1.0025
	1.4000	6.61997E-03	1066.9	-88.168	-4.7251	10237.	570.00	1070.6
10	20.25	5.99075E-03	6.4126	-0.59629	15641.	5392.4	473.80	1.0075
	1.4000	6.63112E-03	1070.4	-99.536	-5.3125	10298.	570.00	1075.0
11	25.00	6.65711E-03	7.1208	-0.73572	17381.	5392.4	473.75	1.0079
	1.4000	6.63191E-03	1069.7	-110.52	-5.8989	10302.	570.00	1075.4
12	30.25	7.32190E-03	7.8210	-0.88988	19116.	5392.4	473.80	1.0075
	1.4000	6.63115E-03	1068.2	-121.40	-6.4539	10298.	570.00	1075.0
13	36.00	7.98624E-03	8.5097	-1.0551	20847.	5392.4	473.99	1.0063
	1.4000	6.62646E-03	1065.8	-132.16	-7.0677	10263.	570.00	1074.0
14	42.25	8.64883E-03	9.2041	-1.2363	22577.	5392.4	474.03	1.0061
	1.4000	6.62792E-03	1066.2	-142.96	-7.6699	10280.	570.00	1073.8
15	49.00	9.31726E-03	9.9097	-1.4334	24325.	5392.4	473.87	1.0071
	1.4000	6.63018E-03	1063.6	-153.85	-8.2306	10293.	570.00	1074.7
16	56.25	9.98169E-03	10.598	-1.6424	26058.	5392.4	473.92	1.0068
	1.4000	6.62949E-03	1061.7	-164.54	-8.8395	10289.	570.00	1074.4
17	64.00	1.06407E-02	11.262	-1.8618	27774.	5392.4	474.21	1.0050
	1.4000	6.62559E-03	1058.4	-174.97	-9.3868	10267.	570.00	1072.8
18	72.25	1.12960E-02	11.933	-2.0905	29469.	5392.4	474.70	1.0019
	1.4000	6.61865E-03	1053.9	-185.13	-9.9620	10230.	570.00	1070.0
19	81.00	1.19575E-02	12.577	-2.3390	31200.	5392.4	474.73	1.0017
	1.4000	6.61019E-03	1051.8	-195.61	-10.535	10229.	570.00	1069.8
20	90.25	1.26031E-02	13.182	-2.5878	32869.	5392.4	475.43	0.99727
	1.4000	6.60843E-03	1045.9	-205.33	-11.106	10175.	570.00	1065.9
21	100.00	1.32385E-02	13.765	-2.8404	34504.	5392.4	476.44	0.99092
	1.4000	6.59450E-03	1038.3	-214.55	-11.675	10100.	570.00	1060.2

ITERATION NO.= 0 X-STATION NO.= 18 Y-INNER = 0.0001 Y-OUTER = 2.0102 OUTPUT NO. = 1

STREAMLINE	%	W1	W2	W3	W4	P-STAT	TEMP(R)	MACH NO
	CP/CV	DENSITY	U	V	FLOW ANG(D)	P-STAG	T-STAG	VELOCITY
1	0.0	5.86452E-07	6.90579E-04	0.0	1.5473	4607.6	457.77	1.1072
	1.4000	5.86452E-03	1161.2	0.0	0.0	9925.9	570.00	1161.2
2	0.25	5.69921E-04	0.66483	9.14502E-04	1556.4	4607.6	457.83	1.1068
	1.4000	5.66379E-03	1160.9	1.5902	7.65110E-02	9921.9	570.00	1160.9
3	1.00	1.17881E-03	1.3674	3.65200E-03	3109.7	4607.6	458.00	1.1058
	1.4000	5.86159E-03	1160.0	3.0980	0.15302	9908.5	570.00	1160.0
4	2.25	1.76562E-03	2.0469	8.19993E-03	4659.9	4607.6	459.79	1.1040
	1.4000	5.85792E-03	1158.5	4.6411	0.22953	9886.8	570.00	1158.5
5	4.00	2.35350E-03	2.7216	1.45373E-02	6205.6	4607.6	458.69	1.1019
	1.4000	5.85278E-03	1156.4	6.1769	0.30604	9856.4	570.00	1156.4
6	6.25	2.94198E-03	3.4098	2.27665E-02	7764.4	4607.6	458.34	1.1037
	1.4000	5.85727E-03	1158.2	7.7332	0.38255	9882.9	570.00	1158.2
7	9.00	3.54245E-03	4.1261	3.30593E-02	9350.5	4607.6	457.07	1.1119
	1.4000	5.87351E-03	1164.8	9.3321	0.45906	9976.2	570.00	1164.8
8	12.25	4.14792E-03	4.8669	4.54933E-02	10961.	4607.6	455.40	1.1217
	1.4000	5.89504E-03	1171.3	10.968	0.53556	10108.	570.00	1173.4
9	16.00	4.75765E-03	5.6223	6.00628E-02	12585.	4607.6	453.79	1.1318
	1.4000	5.91651E-03	1181.7	12.624	0.61207	10237.	570.00	1181.8
10	20.25	5.36131E-03	6.3563	7.63924E-02	14189.	4607.6	452.98	1.1365
	1.4000	5.92648E-03	1185.6	14.249	0.68857	10298.	570.00	1185.7
11	25.00	5.95765E-03	7.0649	9.43429E-02	15768.	4607.6	452.93	1.1368
	1.4000	5.92719E-03	1185.8	15.835	0.76506	10302.	570.00	1186.0
12	30.25	6.55260E-03	7.7685	0.11411	17342.	4607.6	452.98	1.1365
	1.4000	5.92651E-03	1185.6	17.415	0.84156	10298.	570.00	1185.7
13	36.00	7.14533E-03	8.4644	0.13564	18908.	4607.6	453.17	1.1354
	1.4000	5.92410E-03	1184.6	18.983	0.91805	10283.	570.00	1184.8
14	42.25	7.74010E-03	9.1673	0.15914	20482.	4607.6	453.20	1.1351
	1.4000	5.92362E-03	1184.4	20.561	0.99454	10280.	570.00	1184.6
15	49.00	8.11829E-03	9.8821	0.18675	22067.	4607.6	453.05	1.1361
	1.4000	5.92564E-03	1185.1	22.157	1.0710	10293.	570.00	1185.4
16	56.25	8.93231E-03	10.584	0.21201	23640.	4607.6	453.10	1.1359
	1.4000	5.92503E-03	1184.9	23.734	1.1475	10289.	570.00	1185.1
17	64.00	9.52268E-03	11.270	0.24079	25196.	4607.6	453.37	1.1341
	1.4000	5.92146E-03	1183.5	25.296	1.2240	10267.	570.00	1183.7
18	72.25	1.01073E-02	11.937	0.27099	26735.	4607.6	453.84	1.1313
	1.4000	5.91534E-03	1181.0	26.811	1.3005	10230.	570.00	1181.3
19	81.00	1.07011E-02	12.636	0.30374	28305.	4607.6	453.87	1.1311
	1.4000	5.91492E-03	1180.8	28.344	1.3769	10228.	570.00	1181.2
20	90.25	1.12789E-02	13.280	0.33693	29820.	4607.6	454.54	1.1270
	1.4000	5.90521E-03	1177.4	29.873	1.4534	10175.	570.00	1177.8
21	100.00	1.18475E-02	13.891	0.37098	31304.	4607.6	455.50	1.1211
	1.4000	5.89375E-03	1172.5	-31.313	1.5299	10100.	570.00	1172.9

ITERATION NO.= 0 X-STATION NO.= 19 Y-INNER = 0.0001 Y-OUTER = 2.0129 OUTPUT NO. = 1

	STREAMLINE % CP/CV	W1 DENSITY	W2 U	W3 V	W4 FLOW ANG(D)	P-STAT P-STAG	TEMP(P) T-STAG	MACH NO VELOCITY
1	0.0 1.4000	5.79554E-07 5.79554E-03	6.79418E-04 1172.3	0.0 0.0	1.5312 0.0	4531.9 9925.9	455.61 570.00	1.1704 1172.3
2	0.25 1.4000	5.83758E-04 5.79482E-03	0.68417 1172.0	9.13026E-04 1.5651	1542.3 7.65110E-02	4531.9 9921.5	455.67 570.00	1.1201 1172.0
3	1.00 1.4000	1.16650E-03 5.79265E-03	1.3601 1171.1	3.64858E-03 3.1278	3081.5 0.15302	4531.9 9908.5	455.84 570.00	1.1190 1171.1
4	2.25 1.4000	1.74836E-03 5.78902E-03	2.0450 1169.7	8.19290E-03 4.6858	4617.7 0.22753	4531.9 9866.8	456.12 570.00	1.1173 1169.7
5	4.00 1.4000	2.32891E-03 5.78393E-03	2.7192 1167.6	1.45247E-02 6.2367	6149.5 0.30604	4531.9 9856.4	456.52 570.00	1.1148 1167.6
6	6.25 1.4000	2.91323E-03 5.78837E-03	3.4067 1169.4	2.27460E-02 7.8078	7694.1 0.38255	4531.9 9882.9	456.17 570.00	1.1170 1169.4
7	9.00 1.4000	3.50545E-03 5.90442E-03	4.1218 1175.8	3.30251E-02 9.4211	9265.8 0.45906	4531.9 9979.2	454.91 570.00	1.1247 1175.9
8	12.25 1.4000	4.10459E-03 5.82570E-03	4.6610 1184.3	4.54385E-02 11.070	10861. 0.53556	4531.9 10108.	453.25 570.00	1.1349 1184.3
9	16.00 1.4000	4.70796E-03 5.84692E-03	5.6146 1192.6	5.99806E-02 12.745	12471. 0.61207	4531.9 10237.	451.61 570.00	1.1449 1192.6
10	20.25 1.4000	5.30531E-03 5.85677E-03	6.3471 1196.4	7.62820E-02 14.378	14060. 0.68857	4531.9 10298.	450.85 570.00	1.1495 1196.5
11	25.00 1.4000	5.89542E-03 5.85747E-03	7.0546 1196.6	9.42754E-02 15.979	15625. 0.76506	4531.9 10302.	450.79 570.00	1.1499 1196.7
12	30.25 1.4000	6.48416E-03 5.85680E-03	7.7573 1196.3	0.11395 17.573	17185. 0.84156	4531.9 10298.	450.84 570.00	1.1496 1196.5
13	36.00 1.4000	7.07071E-03 5.85442E-03	8.4523 1195.4	0.13544 19.156	18737. 0.91805	4531.9 10283.	451.03 570.00	1.1484 1195.6
14	42.25 1.4000	7.65926E-03 5.85395E-03	9.1543 1195.2	0.15892 20.748	20296. 0.99454	4531.9 10280.	451.06 570.00	1.1482 1195.4
15	49.00 1.4000	8.25121E-03 5.85594E-03	9.8679 1195.9	0.18448 22.358	21867. 1.0710	4531.9 10293.	450.91 570.00	1.1492 1196.1
16	56.25 1.4000	8.83961E-03 5.85533E-03	10.569 1195.7	0.21171 23.950	23425. 1.1475	4531.9 10289.	450.96 570.00	1.1489 1195.9
17	64.00 1.4000	9.42322E-03 5.85182E-03	11.254 1194.3	0.24045 25.517	24968. 1.2240	4531.9 10267.	451.23 570.00	1.1472 1194.5
18	72.25 1.4000	1.00618E-02 5.84576E-03	11.921 1191.9	0.27062 27.057	26492. 1.3005	4531.9 10230.	451.70 570.00	1.1444 1192.2
19	81.00 1.4000	1.05893E-02 5.84535E-03	12.619 1191.7	0.30332 25.644	28048. 1.3769	4531.9 10228.	451.73 570.00	1.1442 1192.0
20	90.25 1.4000	1.11511E-02 5.83674E-03	13.263 1188.3	0.33650 30.149	29550. 1.4534	4531.9 10175.	452.39 570.00	1.1401 1188.7
21	100.00 1.4000	1.17239E-02 5.82443E-03	13.874 1183.4	0.37054 31.606	31020. 1.5299	4531.9 10109.	453.35 570.00	1.1343 1183.8

ITERATION NO.= 0   X-STATION NO.= 20   Y-INNER = 0.0001   Y-OUTER = 2.0155   OUTPUT NO. = 1

STREAMLINE % / CP/CV	W1 / DENSITY	W2 / U	W3 / V	W4 / FLOW ANG(D)	P-STAT / P-STAG	TEMP(R) / T-STAG	MACH NO / VELOCITY
1 0.0	5.73221E-07	6.77836E-04	0.0	1.5164	4462.7	453.61	1.1327
1.4000	5.73220E-03	1182.5	0.0	0.0	9925.9	570.00	1182.5
2 0.25	5.76147E-04	0.58349	9.12719E-04	1529.4	4462.7	453.67	1.1323
1.4000	5.73169E-03	1182.2	1.5787	7.65113E-02	9921.5	570.00	1182.2
3 1.00	1.15529E-03	1.3648	3.64501E-03	3055.8	4462.7	453.84	1.1313
1.4000	5.72934E-03	1181.3	3.1551	0.15302	9906.5	570.00	1181.3
4 2.25	1.73154E-03	2.0431	8.18470E-03	4579.3	4462.7	454.12	1.1295
1.4000	5.72576E-03	1179.9	4.7268	0.22953	9886.8	570.00	1179.9
5 4.00	2.30653E-03	2.7158	1.45115E-02	6099.3	4462.7	454.52	1.1271
1.4000	5.72073E-03	1177.9	6.2915	0.30604	9856.5	570.00	1177.9
6 6.25	2.88523E-03	3.4035	2.27245E-02	7630.0	4462.7	454.17	1.1292
1.4000	5.72512E-03	1179.6	7.8761	0.38255	9882.9	570.00	1179.6
7 9.00	3.47176E-03	4.1175	3.29809E-02	9198.6	4462.7	452.92	1.1369
1.4000	5.74095E-03	1186.0	9.5024	0.45906	9979.2	570.00	1186.0
8 12.25	4.06514E-03	4.5551	4.53832E-02	10771.	4462.7	451.26	1.1470
1.4000	5.76203E-03	1194.3	11.164	0.53556	10108.	570.00	1194.4
9 16.00	4.66271E-03	5.6070	5.98999E-02	12307.	4462.7	449.62	1.1579
1.4000	5.78103E-03	1202.5	12.846	0.61207	10237.	570.00	1202.6
10 20.25	5.25431E-03	6.3381	7.61731E-02	13943.	4462.7	448.87	1.1616
1.4000	5.79277E-03	1206.3	14.497	0.68857	10298.	570.00	1206.3
11 25.00	5.83876E-03	7.0445	9.40704E-02	15494.	4462.7	448.81	1.1619
1.4000	5.79345E-03	1206.5	16.111	0.76506	10302.	570.00	1206.6
12 30.25	6.42184E-03	7.7462	0.11378	17041.	4462.7	448.87	1.1616
1.4000	5.79280E-03	1206.2	17.718	0.84156	10298.	570.00	1206.4
13 36.00	7.00274E-03	8.4404	0.13525	18580.	4462.7	449.05	1.1605
1.4000	5.79344E-03	1205.3	19.314	0.91805	10283.	570.00	1205.5
14 42.25	7.56864E-03	9.1414	0.15869	20127.	4462.7	449.09	1.1603
1.4000	5.78997E-03	1205.1	20.920	0.99454	10280.	570.00	1205.3
15 49.00	8.17190E-03	9.8539	0.18422	21684.	4462.7	448.93	1.1612
1.4000	5.79195E-03	1205.8	22.543	1.0710	10293.	570.00	1206.0
16 56.25	8.75464E-03	10.554	0.21141	23230.	4462.7	448.98	1.1609
1.4000	5.79135E-03	1205.6	24.148	1.1475	10289.	570.00	1205.8
17 64.00	9.33766E-03	11.238	0.24011	24759.	4462.7	449.25	1.1593
1.4000	5.78787E-03	1204.2	25.728	1.2240	10267.	570.00	1204.5
18 72.25	9.90564E-03	11.905	0.27025	26271.	4462.7	449.71	1.1564
1.4000	5.78187E-03	1201.8	27.283	1.3005	10230.	570.00	1202.1
19 81.00	1.04875E-02	12.602	0.30291	27814.	4462.7	449.75	1.1562
1.4000	5.78146E-03	1201.6	28.883	1.3769	10228.	570.00	1202.0
20 90.25	1.10539E-02	13.245	0.33607	29304.	4462.7	450.41	1.1522
1.4000	5.77295E-03	1198.3	30.403	1.4534	10175.	570.00	1198.7
21 100.00	1.16111E-02	13.857	0.37009	30762.	4462.7	451.36	1.1464
1.4000	5.76978E-03	1193.5	31.874	1.5299	10100.	570.00	1193.9

ITERATION NO.= 0 X-STATION NO.= 21 Y-INNER = C.0001 Y-OUTER = 2.0182 OUTPUT NO. = 1

	STREAMLINE % CP/CV	W1 DENSITY	W2 U	W3 V	W4 FLOW ANG(O)	P-STAT P-STAG	TEMP(P) T-STAG	MACH NO VELOCITY
1	C.0	5.67371E-07	6.76241E-C4	0.0	1.9027	4398.7	451.74	1.1441
	1.4000	5.67331E-03	1192.0	C.0	C.0	9925.9	570.00	1192.0
2	0.25	5.72967E-C4	C.68279	9.11782E-04	1517.6	4398.7	451.89	1.1437
	1.4000	5.67260E-03	1191.7	1.5913	7.65115E-02	9921.5	570.00	1191.7
3	1.00	1.14494E-03	1.3614	3.64133E-03	3032.1	4398.7	451.97	1.1427
	1.4000	5.67047E-03	1190.8	3.1804	0.153C2	990C.5	570.00	119C.8
4	2.25	1.71605E-03	2.0410	8.17664E-03	4543.8	4398.7	452.25	1.1418
	1.4000	5.66692E-03	1189.4	4.7648	0.22953	9896.8	570.00	1189.4
5	4.00	2.28586E-03	2.7142	1.44976E-02	6051.0	4398.7	452.65	1.1395
	1.4000	5.66194E-03	1187.4	6.3423	C.30604	9956.5	570.70	1187.4
6	6.25	2.85939E-03	3.4C31	2.27021E-02	7570.9	4398.7	452.30	1.1407
	1.4000	5.66629E-03	1189.1	7.9395	0.38255	9892.9	570.00	1189.1
7	9.0C	3.44060E-03	4.113C	3.25541E-02	9117.3	4398.7	451.05	1.1483
	1.4000	5.69202E-03	1195.4	9.5775	C.45906	9979.2	570.00	1195.4
8	12.25	4.C2372E-03	4.6491	4.53277E-02	10687.	4398.7	449.40	1.1583
	1.4000	5.70283E-03	1203.6	11.251	0.53556	10108.	570.00	1203.7
9	16.00	4.62094E-03	5.5993	5.98176E-02	12271.	4398.7	447.77	1.1683
	1.4000	5.72364E-03	1211.7	12.945	0.612C6	10237.	570.00	1211.8
10	20.25	5.20724E-C3	6.3291	7.6C652E-02	13835.	4398.7	447.02	1.1728
	1.4000	5.73324E-03	1215.4	14.608	0.69857	10298.	570.00	1215.5
11	25.C0	5.78645E-C3	7.C345	9.39369E-02	15374.	4398.7	446.96	1.1732
	1.4000	5.73393E-03	1215.7	16.234	0.76506	10302.	570.00	1215.8
12	30.25	6.36430E-03	7.7352	0.11362	16909.	4398.7	447.02	1.1729
	1.4000	5.73327E-03	1215.4	17.853	0.84156	10298.	570.00	1215.5
13	36.C0	6.94001E-C3	8.4286	0.13536	18436.	4398.7	447.20	1.1718
	1.4000	5.73035E-03	1214.5	19.462	0.918C5	10283.	570.00	1214.6
14	42.25	7.51768E-03	9.1286	0.15867	19970.	4398.7	447.23	1.1715
	1.4000	5.73044E-03	1214.3	21.089	0.99454	10280.	570.00	1214.5
15	49.00	8.09869E-03	9.8430	0.18396	21516.	4398.7	447.08	1.1725
	1.4000	5.73244E-03	1215.0	22.715	1.0710	10293.	570.C0	1215.2
16	56.25	8.67622E-C3	10.539	0.21111	23049.	4398.7	447.13	1.1722
	1.4000	5.72184E-03	1214.7	24.332	1.1475	10289.	570.00	1215.C
17	64.CC	9.24904E-03	11.223	0.23978	24547.	4398.7	447.40	1.1709
	1.4000	5.72819E-03	1213.4	25.925	1.2243	10267.	570.00	1213.7
18	72.25	9.81490E-C3	11.869	0.26469	26067.	4398.7	447.66	1.1677
	1.4000	5.72243E-03	1211.1	27.492	1.3005	10230.	570.0C	1211.4
19	81.00	1.C1936E-02	12.585	0.30259	27598.	4398.7	447.99	1.1675
	1.4000	5.72206E-03	1210.9	29.105	1.1769	10228.	570.00	1211.2
20	90.25	1.09546E-02	13.228	0.33563	29376.	4398.7	449.55	1.1635
	1.4000	5.71363E-03	1207.5	30.638	1.4534	10175.	570.00	1207.9
21	100.CC	1.15070E-02	13.840	0.36964	30523.	4398.7	449.50	1.1577
	1.4000	5.71158E-03	1202.8	32.123	1.5299	10190.	570.00	1203.2

ITERATION NO.= 0 X-STATION NO.= 22 Y-INNER = 0.0001 Y-OUTER = 2.0209 OUTPUT NO. = 1

	STREAMLINE % / CP/CV	W1 / DENSITY	W2 / U	W3 / V	W4 / FLOW ANG(D)	P-STAT / P-STAG	TEMP(R) / T-STAG	MACH NO / VELOCITY
1	0.0	5.61905E-07	6.74633E-04	0.0	1.4898	4338.8	449.98	1.1549
	1.4000	5.61805E-03	1200.8	0.0	0.0	9925.9	570.00	1200.8
2	0.25	5.69139E-04	0.58208	9.10826E-04	1506.5	4338.8	450.03	1.1545
	1.4000	5.61735E-03	1200.5	1.6032	7.65119E-02	9921.5	570.00	1200.5
3	1.00	1.13529E-03	1.3620	3.63796E-03	3010.0	4338.8	450.20	1.1535
	1.4000	5.61524E-03	1199.7	3.2041	0.15302	9909.5	570.00	1199.7
4	2.25	1.70159E-03	2.0390	8.16837E-03	4510.7	4338.8	450.48	1.1518
	1.4000	5.61173E-03	1198.3	4.8004	0.22953	9886.8	570.00	1198.3
5	4.00	2.26660E-03	2.7115	1.44834E-02	6009.9	4338.8	450.88	1.1493
	1.4000	5.60680E-03	1196.3	6.3899	0.30604	9856.5	570.00	1196.3
6	6.25	2.83529E-03	3.3967	2.26792E-02	7515.7	4338.8	449.53	1.1515
	1.4000	5.61110E-03	1198.0	7.9989	0.38255	9882.9	570.00	1198.0
7	9.00	3.41167E-03	4.1084	3.29176E-02	9050.8	4338.8	449.29	1.1590
	1.4000	5.62666E-03	1204.2	9.6485	0.45906	9979.2	570.00	1204.3
8	12.25	3.99477E-03	4.8432	4.52718E-02	10609.	4338.8	447.65	1.1690
	1.4000	5.64728E-03	1212.4	11.333	0.53556	10108.	570.00	1212.4
9	16.00	4.59200E-03	5.5918	5.97366E-02	12181.	4338.8	446.02	1.1789
	1.4000	5.66785E-03	1220.4	13.037	0.61206	10237.	570.00	1220.4
10	20.25	5.16337E-03	6.3232	7.59561E-02	13734.	4336.8	445.27	1.1835
	1.4000	5.67740E-03	1224.0	14.711	0.68857	10298.	570.00	1224.1
11	25.00	5.73770E-03	7.0246	9.38041E-02	15262.	4338.8	445.22	1.1838
	1.4000	5.67808E-03	1224.3	16.349	0.76506	10302.	570.00	1224.4
12	30.25	6.31068E-03	7.7243	0.11346	16785.	4338.8	445.27	1.1835
	1.4000	5.67743E-03	1224.0	17.980	0.84156	10298.	570.00	1224.1
13	36.00	6.88154E-03	8.4168	0.13487	18301.	4338.8	445.45	1.1824
	1.4000	5.67513E-03	1223.1	19.599	0.91805	10283.	570.00	1223.3
14	42.25	7.45434E-03	9.1159	0.15925	19824.	4338.8	445.49	1.1822
	1.4000	5.67466E-03	1222.9	21.229	0.99454	10280.	570.00	1223.1
15	49.00	8.03046E-03	9.8262	0.18370	21399.	4339.8	445.33	1.1831
	1.4000	5.67660E-03	1223.6	22.876	1.0710	10293.	570.00	1223.8
16	56.25	8.60412E-03	10.525	0.21081	22981.	4338.8	445.38	1.1828
	1.4000	5.67601E-03	1223.4	24.504	1.1475	10289.	570.00	1223.6
17	64.00	9.17111E-03	11.207	0.23945	24387.	4338.8	445.65	1.1812
	1.4000	5.67260E-03	1222.0	26.109	1.2240	10267.	570.00	1222.3
18	72.25	9.73413E-03	11.873	0.26953	25877.	4338.8	446.11	1.1784
	1.4000	5.66673E-03	1219.7	27.689	1.3005	10230.	570.00	1220.0
19	81.00	1.03060E-02	12.568	0.30210	27397.	4338.8	446.14	1.1782
	1.4000	5.66633E-03	1219.5	29.313	1.3769	10228.	570.00	1219.9
20	90.25	1.08625E-02	13.211	0.33520	28864.	4338.8	446.80	1.1742
	1.4000	5.65798E-03	1216.2	30.858	1.4534	10175.	570.00	1216.6
21	100.00	1.14101E-02	13.823	0.36919	30300.	4338.8	447.74	1.1684
	1.4000	5.64505E-03	1211.5	32.356	1.5299	10100.	570.00	1211.9

ITERATION NO.= 0 X-STATION NO.= 23 Y-INNER = 0.0331 Y-OUTER = 2.0236 OUTPUT NO. = 1

	STREAMLINE % / CP/CV	W1 / DENSITY	W2 / U	W3 / V	W4 / FLOW ANG(D)	P-STAT / P-STAG	TEMP(R) / T-STAG	MACH NO / VELOCITY
1	0.0	5.56584E-07	6.73017E-04	0.0	1.4775	4282.4	448.30	1.1651
	1.4000	5.55584E-03	1209.2	0.0	0.0	5925.9	570.00	1209.2
2	0.25	5.63605E-04	0.68135	9.09853E-04	1496.1	4282.4	448.35	1.1647
	1.4000	5.56514E-03	1208.9	1.6143	7.65114E-02	5921.6	570.00	1208.9
3	1.00	1.12623E-03	1.3606	3.63372E-03	2989.3	4282.4	448.52	1.1637
	1.4000	5.56305E-03	1208.1	3.2264	0.15302	9908.5	570.00	1208.1
4	2.25	1.66801E-03	2.0369	8.15991E-03	4479.5	4282.4	448.89	1.1620
	1.4000	5.55957E-03	1206.7	4.8340	0.22953	9886.8	570.00	1206.7
5	4.00	2.24851E-03	2.7098	1.44688E-02	5965.4	4282.4	449.20	1.1596
	1.4000	5.55468E-03	1204.7	6.4348	0.30604	9856.4	570.00	1204.7
6	6.25	2.81266E-03	3.3932	2.26559E-02	7463.8	4282.4	448.85	1.1617
	1.4000	5.55895E-03	1206.4	8.0550	0.39255	9882.9	570.00	1206.4
7	9.00	3.38444E-03	4.1038	3.28807E-02	8983.3	4282.4	447.41	1.1692
	1.4000	5.57436E-03	1212.6	9.7152	0.45906	9979.2	570.00	1212.6
8	12.25	3.96290E-03	4.8372	4.52158E-02	10536.	4282.4	445.98	1.1792
	1.4000	5.59480E-03	1220.6	11.419	0.53556	10108.	570.00	1220.7
9	16.00	4.54544E-03	5.5842	5.96559E-02	12097.	4282.4	444.36	1.1890
	1.4000	5.61517E-03	1228.5	13.124	0.61206	10237.	570.00	1228.6
10	20.25	5.12217E-03	6.3113	7.58517E-02	13639.	4282.4	443.61	1.1935
	1.4000	5.62464E-03	1232.2	14.809	0.68857	10298.	570.00	1232.3
11	25.00	5.69191E-03	7.0147	9.36724E-02	15154.	4282.4	443.56	1.1939
	1.4000	5.62531E-03	1232.4	16.457	0.76506	10302.	570.00	1232.5
12	30.25	6.26032E-03	7.7135	0.11330	16669.	4282.4	443.61	1.1936
	1.4000	5.62466E-03	1232.1	18.099	0.84156	10298.	570.00	1232.3
13	36.00	6.82662E-03	8.4051	0.13469	18175.	4282.4	443.79	1.1925
	1.4000	5.62238E-03	1231.2	19.730	0.91805	10283.	570.00	1231.4
14	42.25	7.39486E-03	9.1032	0.15803	19687.	4282.4	443.83	1.1922
	1.4000	5.62192E-03	1231.0	21.370	0.99454	10280.	570.00	1231.2
15	49.00	7.96637E-03	9.8124	0.18345	21211.	4282.4	443.67	1.1932
	1.4000	5.62384E-03	1231.7	23.027	1.0710	10293.	570.00	1231.9
16	56.25	8.53447E-03	10.510	0.21052	22723.	4282.4	443.72	1.1929
	1.4000	5.62326E-03	1231.5	24.667	1.1475	10289.	570.00	1231.7
17	64.00	9.09793E-03	11.192	0.23912	24219.	4282.4	443.99	1.1913
	1.4000	5.61998E-03	1230.1	26.283	1.2240	10267.	570.00	1230.4
18	72.25	9.65651E-03	11.857	0.26916	25696.	4282.4	444.45	1.1885
	1.4000	5.61406E-03	1227.9	27.874	1.3005	10230.	570.00	1228.2
19	81.00	1.02238E-02	12.551	0.30169	27207.	4282.4	444.48	1.1883
	1.4000	5.61367E-03	1227.7	29.509	1.3769	10228.	570.00	1228.0
20	90.25	1.07758E-02	13.194	0.33476	28664.	4282.4	445.13	1.1843
	1.4000	5.60540E-03	1224.4	31.066	1.4534	10175.	570.00	1224.6
21	100.00	1.13190E-02	13.806	0.36873	30091.	4282.4	445.37	1.1786
	1.4000	5.59358E-03	1219.8	32.576	1.5299	10100.	570.00	1220.2

ITERATION NO.= 0 X-STATION NO.= 24 Y-INNER = 0.0001 Y-OUTER = 2.0263 OUTPUT NO. = 1

STREAMLINE	%	W1	W2	W3	W4	P-STAT	TEMP(R)	MACH NO
	CP/CV	DENSITY	U	V	FLOW ANG(D)	P-STAG	T-STAG	VELOCITY
1	0.0	5.51505E-07	6.71390E-04	0.0	1.4658	4228.9	446.69	1.1749
	1.4000	5.51605E-03	1217.2	0.0	0.0	9925.9	570.00	1217.2
2	0.25	5.59305E-04	0.68061	9.06662E-04	1486.2	4228.9	446.74	1.1745
	1.4000	5.51536E-03	1216.9	1.6253	7.65109E-02	9921.6	570.00	1216.9
3	1.00	1.11764E-03	1.3591	3.62981E-03	2969.5	4228.9	446.91	1.1739
	1.4000	5.51329E-03	1216.0	3.2477	0.15302	9976.5	570.00	1216.1
4	2.25	1.67513E-03	2.0347	6.15127E-03	4450.0	4228.9	447.19	1.1718
	1.4000	5.50964E-03	1214.7	4.8660	0.22953	9886.8	570.00	1214.7
5	4.00	2.23136E-03	2.7060	1.44540E-02	5926.1	4228.9	447.59	1.1694
	1.4000	5.50500E-03	1212.7	6.4776	0.30604	9856.4	570.00	1212.7
6	6.25	2.79121E-03	3.3896	2.26320E-02	7414.6	4228.9	447.24	1.1715
	1.4000	5.50922E-03	1214.6	8.1083	0.38755	9862.9	570.00	1214.6
7	9.00	3.35863E-03	4.0991	3.28433E-02	8929.0	4228.9	446.01	1.1790
	1.4000	5.52450E-03	1220.5	9.7798	0.45906	9979.2	570.00	1220.5
8	12.25	3.93267E-03	4.8311	4.51594E-02	10466.	4228.9	444.38	1.1889
	1.4000	5.54475E-03	1228.5	11.483	0.53556	10108.	570.00	1228.5
9	16.00	4.51077E-03	5.5767	5.95754E-02	12017.	4228.9	442.76	1.1987
	1.4000	5.56495E-03	1236.3	13.207	0.61206	10237.	570.00	1236.4
10	20.25	5.08309E-03	6.3025	7.57455E-02	13548.	4228.9	442.02	1.2032
	1.4000	5.57432E-03	1239.9	14.901	0.68857	10298.	570.00	1240.0
11	25.00	5.64849E-03	7.0049	9.35411E-02	15056.	4228.9	441.97	1.2035
	1.4000	5.57499E-03	1240.1	16.560	0.76506	10302.	570.00	1240.2
12	30.25	6.21257E-03	7.7027	0.11315	16559.	4228.9	442.07	1.2032
	1.4000	5.57435E-03	1239.9	18.212	0.84156	10298.	570.00	1240.0
13	36.00	6.77455E-03	8.3935	0.13450	18059.	4228.9	442.20	1.2021
	1.4000	5.57209E-03	1239.0	19.854	0.91805	10283.	570.00	1239.1
14	42.25	7.33845E-03	9.0906	0.15781	19557.	4228.9	442.23	1.2019
	1.4000	5.57163E-03	1238.8	21.505	0.99454	10280.	570.00	1239.0
15	49.00	7.90561E-03	9.7987	0.18319	21071.	4228.9	442.29	1.2028
	1.4000	5.57354E-03	1239.5	23.172	1.0710	10293.	570.00	1239.7
16	56.25	9.46937E-03	10.495	0.21023	22572.	4228.9	442.13	1.2025
	1.4000	5.57296E-03	1239.2	24.822	1.1475	10289.	570.00	1239.5
17	64.00	9.02854E-03	11.176	0.23979	24059.	4228.9	442.39	1.2009
	1.4000	5.56961E-03	1237.9	26.449	1.2240	10267.	570.00	1238.2
18	72.25	9.59284E-03	11.861	0.26809	25526.	4228.9	442.85	1.1981
	1.4000	5.55384E-03	1235.6	28.050	1.3005	10230.	570.00	1235.9
19	81.00	1.01456E-02	12.535	0.30129	27027.	4228.9	442.88	1.1980
	1.4000	5.56345E-03	1235.4	29.696	1.3769	10228.	570.00	1235.8
20	90.25	1.06936E-02	13.177	0.33432	28475.	4228.9	443.56	1.1940
	1.4000	5.55525E-03	1232.2	31.264	1.4534	10175.	570.00	1232.6
21	100.00	1.12327E-02	13.789	0.36629	29892.	4228.9	444.47	1.1883
	1.4000	5.54354E-03	1227.6	32.796	1.5299	10100.	570.00	1228.0

ITERATION NO. = 0 X-STATION NO. = 25 Y-INNER = 0.0001 Y-OUTER = 2.0289 OUTPUT NO. = 1

STREAMLINE	% / CP/CV	W1 / DENSITY	W2 / U	W3 / V	W4 / FLOW ANG(0)	P-STAT / P-STAG	TEMP(R) / T-STAG	MACH NO / VELOCITY
1	0.0	5.46874E-07	6.65765E-04	0.0	1.4547	4178.2	445.15	1.1842
	1.4000	5.46874E-03	1224.7	0.0	0.0	9929.9	570.00	1224.7
2	0.25	5.55240E-04	0.67986	9.07863E-04	1476.9	4178.2	445.21	1.1838
	1.4000	5.46906E-03	1224.6	1.6351	7.65110E-02	9921.5	570.00	1224.4
3	1.00	1.10952E-03	1.3576	3.62596E-03	2950.9	4178.2	445.38	1.1828
	1.4000	5.46601E-03	1223.6	3.2690	0.15302	9908.5	570.00	1223.6
4	2.25	1.66296E-03	2.0325	8.14257E-03	4423.0	4178.2	445.65	1.1811
	1.4000	5.46259E-03	1222.2	4.8964	0.22953	9886.8	570.00	1222.3
5	4.00	2.21515E-03	2.7032	1.44369E-02	5888.9	4178.2	446.05	1.1788
	1.4000	5.45779E-03	1220.3	6.5182	0.30604	9856.4	570.00	1220.3
6	6.25	2.77093E-03	3.3860	2.26079E-02	7353.1	4178.2	445.70	1.1808
	1.4000	5.46199E-03	1222.0	8.1590	0.38259	9882.9	570.00	1222.0
7	9.00	3.33423E-03	4.0965	3.28357E-02	8372.9	4178.2	444.47	1.1883
	1.4000	5.47712E-03	1228.0	9.8351	0.45906	9975.2	570.00	1228.0
8	12.25	3.90410E-03	4.8251	4.51033E-02	10490.	4178.2	442.85	1.1982
	1.4000	5.45720E-03	1235.9	11.553	0.53556	10108.	570.00	1236.0
9	16.00	4.47900E-03	5.5692	5.94954E-02	11942.	4178.2	441.24	1.2079
	1.4000	5.51722E-03	1243.7	13.286	0.61207	10237.	570.00	1243.7
10	20.25	5.04617E-03	6.2938	7.56406E-02	13463.	4178.2	440.50	1.2124
	1.4000	5.52652E-03	1247.2	14.990	0.65857	10298.	570.00	1247.3
11	25.00	5.60746E-03	6.9951	9.34111E-02	14561.	4178.2	440.45	1.2127
	1.4000	5.52718E-03	1247.5	16.658	0.76506	10302.	570.00	1247.6
12	30.25	6.16743E-03	7.6921	0.11299	16455.	4178.2	440.50	1.2124
	1.4000	5.52654E-03	1247.2	18.320	0.84196	10298.	570.00	1247.3
13	36.00	6.72534E-03	8.3819	0.13432	17941.	4178.2	440.68	1.2113
	1.4000	5.52430E-03	1246.3	19.972	0.91605	10283.	570.00	1246.5
14	42.25	7.29514E-03	9.0781	0.15759	19434.	4178.2	440.71	1.2111
	1.4000	5.52385E-03	1246.1	21.632	0.99454	10280.	570.00	1246.3
15	49.00	7.84817E-03	9.7852	0.18294	20938.	4178.2	440.56	1.2120
	1.4000	5.52574E-03	1246.8	23.309	1.0710	10293.	570.00	1247.0
16	56.25	8.40783E-03	10.481	0.20994	22430.	4178.2	440.61	1.2117
	1.4000	5.52516E-03	1246.6	24.969	1.1475	10289.	570.00	1246.8
17	64.00	8.96294E-03	11.161	0.23847	23907.	4178.2	440.87	1.2101
	1.4000	5.52184E-03	1245.2	26.606	1.2240	10267.	570.00	1245.5
18	72.25	9.51323E-03	11.825	0.26844	25368.	4178.2	441.33	1.2074
	1.4000	5.51612E-03	1243.0	28.218	1.3005	10230.	570.00	1243.3
19	81.00	1.00721E-02	12.518	0.30089	26857.	4178.2	441.36	1.2072
	1.4000	5.51574E-03	1242.8	29.873	1.3769	10228.	570.00	1243.2
20	90.25	1.06160E-02	13.160	0.33389	28296.	4178.2	442.01	1.2032
	1.4000	5.50761E-03	1239.6	31.452	1.4534	10175.	570.00	1240.0
21	100.00	1.11511E-02	13.772	0.36782	29704.	4178.2	442.95	1.1976
	1.4000	5.49600E-03	1235.1	32.985	1.5299	10100.	570.00	1235.5

ITERATION NO.= 0 X-STATION NO.= 26 Y-INNER = 0.0001 Y-OUTER = 2.0314 OUTPUT NO. = 1

	STREAMLINE % / CP/CV	W1 / DENSITY	W2 / U	W3 / V	W4 / FLOW ANG(D)	P-STAT / P-STAG	TEMP(R) / T-STAG	MACH NO / VELOCITY
1	0.0	5.42341E-07	6.68138E-04	0.0	1.4440	4129.8	443.67	1.1932
	1.4000	5.42341E-03	1232.0	0.0	0.0	9925.9	570.00	1232.0
2	0.25	5.51365E-04	0.67910	9.06855E-04	1468.0	4129.8	443.73	1.1928
	1.4000	5.42274E-03	1231.7	1.6447	7.65109E-02	9921.5	570.00	1231.7
3	1.00	1.10178E-03	1.2561	3.62188E-03	2933.1	4129.8	443.90	1.1918
	1.4000	5.42071E-03	1230.9	3.2873	0.15302	9908.5	570.00	1230.9
4	2.25	1.65136E-03	2.0203	8.13376E-03	4395.4	4129.8	444.17	1.1901
	1.4000	5.41731E-03	1229.5	4.9255	0.22953	9896.8	570.00	1229.5
5	4.00	2.19569E-03	2.7003	1.44236E-02	5853.4	4129.8	444.56	1.1878
	1.4000	5.41255E-03	1227.4	6.5571	0.30604	9856.5	570.00	1227.6
6	6.25	2.75159E-03	3.3824	2.25835E-02	7323.6	4129.8	444.72	1.1898
	1.4000	5.41671E-03	1229.2	8.2074	0.38255	9882.9	570.00	1229.3
7	9.00	3.31096E-03	4.0897	3.27679E-02	8819.4	4129.8	442.99	1.1973
	1.4000	5.43172E-03	1235.2	9.8568	0.45906	9979.2	570.00	1235.3
8	12.25	3.87685E-03	4.6191	4.50469E-02	10338.	4129.8	441.38	1.2071
	1.4000	5.45144E-03	1243.0	11.619	0.53556	10108.	570.00	1243.1
9	16.00	4.44674E-03	5.5617	5.94157E-02	11869.	4129.8	439.77	1.2168
	1.4000	5.47149E-03	1250.7	13.362	0.61206	10237.	570.00	1250.8
10	20.25	5.01095E-03	6.2551	7.55361E-02	13392.	4129.8	439.04	1.2213
	1.4000	5.46071E-03	1254.3	15.074	0.68857	10298.	570.00	1254.4
11	25.00	5.56633E-03	6.9455	9.32819E-02	14871.	4129.8	438.98	1.2216
	1.4000	5.48137E-03	1254.5	16.752	0.76506	10302.	570.00	1254.6
12	30.25	6.12439E-03	7.6814	0.11283	16355.	4129.8	439.03	1.2213
	1.4000	5.46074E-03	1254.2	18.424	0.84156	10298.	570.00	1254.4
13	36.00	6.67845E-03	8.3704	0.13413	17833.	4129.8	439.21	1.2202
	1.4000	5.47851E-03	1253.4	20.084	0.91805	10283.	570.00	1253.5
14	42.25	7.23430E-03	9.0657	0.15738	19317.	4129.8	439.25	1.2200
	1.4000	5.47807E-03	1253.2	21.755	0.99454	10280.	570.00	1253.3
15	49.00	7.79341E-03	9.7717	0.18268	20811.	4129.8	439.10	1.2209
	1.4000	5.47994E-03	1253.8	23.441	1.0710	10293.	570.00	1254.1
16	56.25	8.34916E-03	10.446	0.20965	22295.	4129.8	439.14	1.2206
	1.4000	5.47937E-03	1253.6	25.110	1.1475	10289.	570.00	1253.8
17	64.00	8.90039E-03	11.146	0.23814	23763.	4129.8	439.41	1.2190
	1.4000	5.47607E-03	1252.3	26.756	1.2240	10267.	570.00	1252.6
18	72.25	9.44684E-03	11.809	0.26908	25214.	4129.8	439.96	1.2163
	1.4000	5.47041E-03	1250.1	28.378	1.3005	10230.	570.00	1250.4
19	81.00	1.00018E-02	12.501	0.30048	26695.	4129.8	439.89	1.2161
	1.4000	5.47002E-03	1249.9	30.043	1.3769	10228.	570.00	1250.2
20	90.25	1.05419E-02	13.143	0.33346	28125.	4129.8	440.54	1.2121
	1.4000	5.46196E-03	1246.7	31.632	1.4534	10175.	570.00	1247.1
21	100.00	1.10733E-02	13.755	0.36736	29525.	4129.8	441.47	1.2065
	1.4000	5.45045E-03	1242.2	33.176	1.5299	10100.	570.00	1242.6

ITERATION NO.= 0 X-STATION NO.= 27 Y-INNER = 0.0001 Y-OUTER = 2.0343 OUTPUT NO. = 1

STREAMLINE % / CP/CV		W1 / DENSITY	W2 / U	W3 / V	W4 / FLOW ANG(D)	P-STAT / P-STAG	TEMP(R) / T-STAG	MACH NO / VELOCITY
1	0.0	5.37986E-07	6.66510E-04	0.0	1.4337	4083.5	442.24	1.2018
	1.4000	5.37986E-03	1238.9	0.0	0.0	9925.9	570.00	1238.9
2	0.25	5.47657E-04	0.67834	9.05840E-04	1459.5	4083.5	442.30	1.2015
	1.4000	5.37919E-03	1238.6	1.6540	7.65110E-02	9921.5	570.00	1238.6
3	1.00	1.09437E-03	1.3546	3.61785E-03	2916.1	4083.5	442.47	1.2005
	1.4000	5.37717E-03	1237.8	3.3059	0.15302	9908.5	570.00	1237.8
4	2.25	1.64025E-03	2.0281	8.12487E-03	4369.9	4083.5	442.74	1.1988
	1.4000	5.37390E-03	1236.5	4.9534	0.22953	9856.8	570.00	1236.5
5	4.00	2.18490E-03	2.6574	1.44082E-02	5819.4	4083.5	443.13	1.1964
	1.4000	5.36505E-03	1234.6	6.5944	0.30604	9856.4	570.00	1234.6
6	6.25	2.73309E-03	3.3787	2.25589E-02	7281.1	4083.5	442.79	1.1985
	1.4000	5.37327E-03	1236.2	8.2540	0.39255	9882.9	570.00	1236.2
7	9.00	3.28879E-03	4.0850	3.27299E-02	8768.2	4083.5	441.57	1.2059
	1.4000	5.38810E-03	1242.1	9.9522	0.45906	9979.2	570.00	1242.2
8	12.25	3.85079E-03	4.8131	4.49907E-02	10277.	4083.5	439.96	1.2157
	1.4000	5.40785E-03	1249.9	11.683	0.53556	10108.	570.00	1249.9
9	16.00	4.41685E-03	5.5543	5.93363E-02	11890.	4083.5	438.36	1.2254
	1.4000	5.42755E-03	1257.5	13.434	0.61207	10237.	570.00	1257.6
10	20.25	4.97726E-03	6.2764	7.54322E-02	13304.	4083.5	437.62	1.2298
	1.4000	5.43669E-03	1261.0	15.155	0.68857	10298.	570.00	1261.1
11	25.00	5.52089E-03	6.9758	9.31533E-02	14784.	4083.5	437.57	1.2301
	1.4000	5.43735E-03	1261.3	16.842	0.76506	10302.	570.00	1261.4
12	30.25	6.08322E-03	7.6709	0.11268	16250.	4083.5	437.62	1.2298
	1.4000	5.43672E-03	1261.0	18.523	0.84156	10298.	570.00	1261.1
13	36.00	6.63351E-03	8.3590	0.13395	17729.	4083.5	437.80	1.2288
	1.4000	5.43451E-03	1260.1	20.193	0.91805	10283.	570.00	1260.3
14	42.25	7.18566E-03	9.0533	0.15716	19204.	4083.5	437.83	1.2285
	1.4000	5.43407E-03	1259.9	21.872	0.99454	10280.	570.00	1260.1
15	49.00	7.74101E-03	9.7583	0.18243	20690.	4083.5	437.68	1.2295
	1.4000	5.43592E-03	1260.6	23.567	1.0710	10293.	570.00	1260.8
16	56.25	8.29303E-03	10.452	0.20936	22165.	4083.5	437.73	1.2292
	1.4000	5.43536E-03	1260.3	25.245	1.1475	10289.	570.00	1260.6
17	64.00	8.84055E-03	11.131	0.23782	23625.	4083.5	437.99	1.2276
	1.4000	5.43209E-03	1259.1	26.901	1.2240	10267.	570.00	1259.3
18	72.25	9.38333E-03	11.793	0.26773	25068.	4083.5	438.45	1.2248
	1.4000	5.42647E-03	1256.9	28.532	1.3005	10230.	570.00	1257.2
19	81.00	9.93456E-03	12.494	0.30008	26540.	4083.5	438.48	1.2246
	1.4000	5.42609E-03	1256.7	30.206	1.3769	10228.	570.00	1257.0
20	90.25	1.04710E-02	13.126	0.33303	27961.	4083.5	439.12	1.2207
	1.4000	5.41810E-03	1253.5	31.805	1.4534	10175.	570.00	1253.9
21	100.00	1.09988E-02	13.738	0.36691	29353.	4083.5	440.05	1.2151
	1.4000	5.40667E-03	1249.0	33.359	1.5299	10100.	570.00	1249.5

ITERATION NO. = 0 X-STATION NO. = 28 Y-INNER = 0.0001 Y-OUTER = 2.0370 OUTPUT NO. = 1

STREAMLINE / CP/CV		W1 DENSITY	W2 U	W3 V	W4 FLOW ANG(D)	P-STAT / P-STAG	TEMP(R) / T-STAG	MACH NO / VELOCITY
1	0.0	5.33788E-07	6.64880E-04	0.0	1.4238	4038.9	440.86	1.2102
	1.4000	5.33788E-03	1245.6	0.0	0.0	9925.9	570.00	1245.6
2	0.25	5.44099E-04	0.67758	9.04818E-04	1451.3	4038.9	440.52	1.2099
	1.4000	5.33722E-03	1245.3	1.6630	7.65110E-02	9921.5	570.00	1245.3
3	1.00	1.08726E-03	1.3531	3.61381E-03	2899.7	4038.9	441.08	1.2089
	1.4000	5.33521E-03	1244.5	3.3238	0.15302	9908.5	570.00	1244.5
4	2.25	1.62960E-03	2.0259	8.11590E-03	4345.3	4038.9	441.36	1.2072
	1.4000	5.33187E-03	1243.2	4.9903	0.22953	9886.8	570.00	1243.2
5	4.00	2.17071E-03	2.6965	1.43925E-02	5786.8	4038.9	441.75	1.2048
	1.4000	5.32719E-03	1241.3	6.6303	0.30604	9856.4	570.00	1241.3
6	6.25	2.71534E-03	3.3750	2.25340E-02	7240.3	4038.9	441.41	1.2069
	1.4000	5.33127E-03	1242.9	5.2988	0.38255	9882.9	570.00	1242.9
7	9.00	3.26734E-03	4.0902	3.26917E-02	8719.0	4038.9	440.19	1.2163
	1.4000	5.34606E-03	1248.8	10.006	0.45906	9979.2	570.00	1248.8
8	12.25	3.82578E-03	4.6071	4.49343E-02	10220.	4038.9	438.58	1.2240
	1.4000	5.36566E-03	1256.5	11.745	0.53556	10108.	570.00	1256.5
9	16.00	4.38816E-03	5.5469	5.92971E-02	11734.	4038.9	436.99	1.2337
	1.4000	5.38520E-03	1264.1	13.504	0.61207	10237.	570.00	1264.1
10	20.25	4.94493E-03	6.2678	7.53297E-02	13229.	4038.9	436.25	1.2381
	1.4000	5.39427E-03	1267.5	15.234	0.68857	10298.	570.00	1267.6
11	25.00	5.45456E-03	6.9663	9.30252E-02	14701.	4038.9	436.20	1.2384
	1.4000	5.39492E-03	1267.8	16.929	0.76506	10302.	570.00	1267.9
12	30.25	6.04371E-03	7.6603	0.11252	16169.	4038.9	436.25	1.2381
	1.4000	5.39430E-03	1267.5	18.618	0.84156	10298.	570.00	1267.6
13	36.00	6.59041E-03	8.3476	0.13377	17629.	4038.9	436.43	1.2370
	1.4000	5.39211E-03	1266.6	20.297	0.91805	10283.	570.00	1266.8
14	42.25	7.13899E-03	9.0410	0.15695	19096.	4038.9	436.46	1.2368
	1.4000	5.39167E-03	1266.4	21.985	0.99454	10280.	570.00	1266.6
15	49.00	7.69073E-03	9.7450	0.18218	20574.	4038.9	436.31	1.2377
	1.4000	5.39351E-03	1267.1	23.689	1.0710	10293.	570.00	1267.3
16	56.25	8.23916E-03	10.438	0.20908	22041.	4038.9	436.36	1.2375
	1.4000	5.39295E-03	1266.9	25.376	1.1475	10289.	570.00	1267.1
17	64.00	8.78313E-03	11.116	0.23750	23492.	4038.9	436.62	1.2359
	1.4000	5.38971E-03	1265.6	27.040	1.2240	10267.	570.00	1265.9
18	72.25	9.32[illegible]E-03	11.778	0.26737	24927.	4038.9	437.07	1.2331
	1.4000	5.38413E-03	1263.4	28.681	1.3005	10230.	570.00	1263.7
19	81.00	9.87004E-03	12.468	0.29969	26391.	4038.9	437.10	1.2330
	1.4000	5.38375E-03	1263.2	30.363	1.3769	10228.	570.00	1263.6
20	90.25	1.04030E-02	13.109	0.33260	27804.	4038.9	437.75	1.2290
	1.4000	5.37582E-03	1260.1	31.971	1.4534	10175.	570.00	1260.5
21	100.00	1.09774E-02	13.721	0.36645	29188.	4038.9	438.67	1.2235
	1.4000	5.36449E-03	1255.6	33.535	1.5299	10105.	570.00	1256.1

ITERATION NO.= 0 X-STATION NO.= 29 Y-INNER = 0.0001 Y-OUTER = 2.0397 OUTPUT NO. = 1

STREAMLINE %	CP/CV	W1 DENSITY	W2 U	W3 V	W4 FLOW ANG(D)	P-STAT P-STAG	TEMP(R) T-STAG	MACH NO VELOCITY
1	0.0	5.29753E-07	6.65251E-04	0.0	1.4142	5996.0	459.52	1.2185
	1.4000	5.29733E-03	1252.0	0.0	0.0	9925.9	570.00	1252.0
2	0.25	5.40676E-04	0.67681	9.03739E-04	1445.4	3996.0	439.57	1.2180
	1.4000	5.29667E-03	1251.8	1.6716	7.65110E-02	9921.5	570.00	1251.8
3	1.00	1.08042E-03	1.5516	3.60974E-05	2884.0	3996.0	439.74	1.2170
	1.4000	5.29468E-03	1251.0	3.5411	0.15302	9908.5	570.00	1251.0
4	2.25	1.61935E-03	2.0236	8.10686E-05	4321.7	3996.0	440.01	1.2155
	1.4000	5.29137E-03	1249.7	5.0065	0.22955	9886.8	570.00	1249.7
5	4.00	2.15706E-03	2.6915	1.43768E-02	5755.4	3996.0	440.40	1.2130
	1.4000	5.28672E-05	1247.8	6.6650	0.50604	9856.4	570.00	1247.8
6	6.25	2.69826E-05	5.5712	2.25090E-02	7200.9	3996.0	440.06	1.2150
	1.4000	5.29078E-03	1249.4	8.5421	0.38255	9882.9	570.00	1249.4
7	9.00	3.24678E-03	4.0754	3.26534E-02	8671.6	3996.0	438.85	1.2224
	1.4000	5.30545E-05	1255.2	10.057	0.45906	9979.2	570.00	1255.3
8	12.25	5.80171E-05	4.8010	4.48783E-02	10164.	3996.0	437.24	1.2321
	1.4000	5.52490E-03	1262.9	11.805	0.53556	10108.	570.00	1262.9
9	16.00	4.36056E-03	5.5395	5.91787E-02	11670.	3996.9	435.66	1.2417
	1.4000	5.54429E-05	1270.4	13.571	0.61207	10257.	570.00	1270.4
10	20.25	4.91585E-03	6.2595	7.52258E-02	13157.	5996.0	434.92	1.2461
	1.4000	5.55550E-05	1273.8	15.509	0.68857	10298.	570.00	1273.9
11	25.00	5.46040E-03	6.9567	9.28979E-02	14621.	5996.0	434.87	1.2465
	1.4000	5.35394E-03	1274.0	17.015	0.76506	10302.	570.00	1274.1
12	30.25	6.00569E-03	7.6499	0.11237	16081.	3996.0	434.92	1.2462
	1.4000	5.55552E-03	1275.8	18.710	0.84156	10298.	570.00	1273.9
13	56.00	6.54896E-03	8.5362	0.15358	17535.	3996.0	435.10	1.2451
	1.4000	5.35115E-03	1272.9	20.598	0.91505	10285.	570.00	1275.1
14	42.25	7.09409E-03	9.0288	0.15674	18992.	3996.0	435.13	1.2449
	1.4000	5.35072E-03	1272.7	22.094	0.99454	10280.	570.00	1272.9
15	49.00	7.64235E-05	9.7317	0.18194	20462.	5996.0	434.99	1.2458
	1.4000	5.35254E-05	1273.4	23.806	1.0710	10295.	570.00	1273.6
16	56.25	8.18754E-03	10.424	0.20879	21921.	5996.0	435.03	1.2455
	1.4000	5.55198E-05	1273.1	25.502	1.1475	10269.	570.00	1275.4
17	64.00	8.72788E-03	11.101	0.25718	23364.	3996.0	435.29	1.2439
	1.4000	5.34876E-05	1271.9	27.175	1.2240	10267.	570.00	1277.2
18	72.25	9.26374E-05	11.762	0.26702	24791.	3996.0	435.74	1.2417
	1.4000	5.34323E-03	1269.7	28.824	1.3005	10230.	570.00	1270.0
19	81.00	9.80794E-05	12.451	0.29929	26247.	5996.0	455.77	1.2410
	1.4000	5.54285E-05	1269.5	30.515	1.5769	10228.	570.00	1269.9
20	90.25	1.03376E-02	15.092	0.33217	27655.	5996.0	435.42	1.2371
	1.4000	5.35498E-03	1266.4	32.132	1.4556	10175.	570.00	1266.8
21	100.00	1.09587E-02	13.704	0.56599	29030.	3996.0	437.54	1.2315
	1.4000	5.32374E-05	1262.0	35.705	1.5299	10100.	570.00	1262.5

ITERATION NO. = 0 X-STATION NO. = 30 Y-INNER = 0.0001 Y-OUTER = 2.0423 OUTPUT NO. = 1

	STREAMLINE & CP/CV	W1 DENSITY	W2 U	W3 V	W4 FLOW ANG(D)	P-STAT P-STAG	TEMP(R) T-STAG	MACH NO VELOCITY
1	0.0	5.25810E-07	6.61622E-04	0.0	1.4049	3954.7	438.21	1.2262
	1.4000	3.23810E-03	1238.3	0.0	0.0	9925.8	370.00	1258.3
2	0.25	5.37377E-04	0.67604	9.02758E-04	1435.8	3954.7	438.27	1.2259
	1.4000	5.25745E-03	1238.0	1.6799	7.65110E-02	9921.6	570.00	1258.0
3	1.00	1.0773E3E-03	1.3501	3.60364E-03	2868.8	3954.7	438.43	1.2249
	1.4000	5.25548E-03	1257.2	3.3578	0.15302	9928.5	570.00	1257.2
4	2.25	1.60947E-03	2.0714	8.09779E-03	4299.0	3954.7	439.71	1.2233
	1.4000	5.25219E-03	1255.9	5.0313	0.22953	9886.8	570.00	1233.9
5	4.00	2.14390E-03	2.6886	1.43610E-02	3725.1	3954.7	439.09	1.2209
	1.4000	5.24757E-03	1254.1	6.6986	0.30604	9956.4	570.00	1254.1
6	6.23	2.66180E-03	3.3674	2.24834E-02	7163.0	3954.7	438.76	1.2230
	1.4000	5.25160E-03	1233.7	8.3829	0.38355	9892.9	570.00	1255.7
7	9.00	3.22697E-03	4.0707	3.26149E-02	8625.9	3954.7	437.54	1.2303
	1.4000	3.26616E-03	1261.4	10.107	0.43906	9979.2	570.00	1261.5
8	12.23	3.77832E-03	4.7950	4.48217E-02	10111.	3954.7	435.95	1.2400
	1.4000	5.28547E-03	1269.0	11.862	0.33556	10108.	370.00	1269.1
9	16.00	4.33395E-03	5.5321	3.90996E-02	11609.	3954.7	434.36	1.2495
	1.4000	5.30472E-03	1276.5	13.636	0.61206	10237.	570.00	1276.5
10	20.25	4.88354E-03	6.2507	7.51233E-02	13088.	3954.7	433.63	1.2539
	1.4000	5.31363E-03	1279.9	15.382	0.68837	10298.	570.00	1280.0
11	25.00	5.42708E-03	6.5472	9.27711E-02	14544.	3954.7	433.58	1.2549
	1.4000	5.31429E-03	1280.1	17.094	0.76506	10302.	370.00	1280.2
12	30.25	5.96905E-03	7.6394	0.11222	15996.	3954.7	433.63	1.2540
	1.4000	5.31368E-03	1279.8	18.800	0.84156	10298.	570.00	1280.0
13	36.00	6.50900E-03	8.3230	0.13340	17441.	3934.7	433.81	1.2529
	1.4000	5.31132E-03	1279.0	20.493	0.91803	10283.	570.00	1279.2
14	42.23	7.05080E-03	9.0169	0.15653	18892.	3954.7	433.84	1.2527
	1.4000	5.31109E-03	1278.8	22.200	0.99434	10280.	570.00	1279.0
15	49.00	7.59573E-03	9.7184	0.18169	20354.	3954.7	433.69	1.2536
	1.4000	3.31290E-03	1279.5	23.920	1.0710	10293.	570.00	1279.7
16	56.25	8.13739E-03	10.409	0.20851	21803.	3954.7	433.74	1.2533
	1.4000	5.31233E-03	1279.2	25.623	1.1475	10289.	570.00	1279.5
17	64.00	8.67463E-03	11.086	0.23686	23241.	3954.7	434.00	1.2517
	1.4000	5.30916E-03	1278.0	27.305	1.2240	10257.	570.00	1278.2
18	72.25	9.20721E-03	11.747	0.26665	24660.	3934.7	434.43	1.2490
	1.4000	3.30366E-03	1273.8	28.962	1.3003	10230.	570.00	1276.1
19	81.00	9.74810E-03	12.435	0.29889	26109.	3954.7	434.48	1.2488
	1.4000	5.30329E-03	1273.6	30.662	1.3769	10228.	570.00	1276.0
20	90.25	1.02745E-02	13.073	0.33174	27507.	3934.7	435.12	1.2449
	1.4000	3.29348E-03	1272.6	32.287	1.4534	10175.	570.00	1273.0
21	100.00	1.07924E-02	13.687	0.36551	28877.	3934.7	436.04	1.2396
	1.4000	5.28431E-03	1268.2	33.870	1.5299	10100.	570.00	1268.6

ITERATION NO.= 0 X-STATION NO.= 31 Y-INNER = 0.0001 Y-OUTER = 2.0450 OUTPUT NO. = 1

	STREAMLINE % CP/CV	W1 DENSITY	W2 U	W3 V	W4 FLOW ANG(D)	P-STAT P-STAG	TEMP(R) T-STAG	MACH NO VELOCITY
1	0.0	5.22007E-07	6.59996E-04	0.0	1.5959	5914.7	436.94	1.2339
	1.4000	5.22007E-03	1264.3	0.0	0.0	9925.9	570.00	1264.3
2	0.25	5.34189E-04	0.67526	5.01771E-04	1428.4	3914.7	437.00	1.2356
	1.4000	5.21942E-05	1264.1	1.6980	7.65109E-02	9921.5	570.00	1264.1
3	1.00	1.06746E-05	1.3485	3.60155E-03	2954.1	3914.7	457.16	1.2326
	1.4000	5.21746E-03	1263.3	3.5739	0.15302	9908.5	570.00	1263.3
4	2.25	1.55992E-03	2.0191	6.09866E-03	4277.0	3914.7	457.44	1.2510
	1.4000	5.21420E-05	1262.0	5.0557	0.22955	9886.8	570.00	1262.0
5	4.00	2.13118E-03	2.6856	1.43451E-02	5695.8	5914.7	457.92	1.2286
	1.4000	5.20961E-03	1260.1	6.7311	0.30604	9856.4	570.00	1260.2
6	6.25	2.66589E-05	3.5637	2.24524E-02	7126.4	5914.7	437.48	1.2307
	1.4000	5.21361E-03	1261.7	8.4244	0.39255	9887.9	570.00	1261.8
7	9.00	5.25783E-05	4.0658	3.25764E-02	8581.7	3914.7	436.27	1.2380
	1.4000	5.22807E-03	1267.5	10.155	0.45996	9579.2	570.00	1267.5
8	12.25	3.75611E-05	4.7890	4.47655E-02	10359.	3914.7	434.68	1.2476
	1.4000	5.24724E-03	1275.0	11.918	0.53556	10108.	570.00	1275.0
9	16.00	4.50825E-05	5.5248	5.90212E-02	11549.	5914.7	437.10	1.2571
	1.4000	5.26655E-03	1282.4	15.700	0.61207	10237.	570.00	1282.4
10	20.25	4.95488E-05	6.2422	7.50212E-02	13020.	3914.7	452.38	1.2615
	1.4000	5.27522E-05	1285.8	15.453	0.68857	10298.	570.00	1285.9
11	25.00	5.35489E-03	6.9378	9.26445E-02	14469.	5914.7	432.22	1.2619
	1.4000	5.27595E-03	1286.0	17.173	0.76506	10302.	570.00	1286.1
12	30.25	5.53304E-03	7.6291	0.11206	15914.	3914.7	432.37	1.2616
	1.4000	5.27524E-03	1285.7	18.886	0.84156	10298.	570.00	1285.9
13	36.00	6.47040E-03	8.3137	0.15522	17351.	3914.7	432.55	1.2605
	1.4000	5.27510E-03	1284.9	20.590	0.91805	10283.	570.00	1285.0
14	42.25	7.05899E-03	9.0044	0.15651	18795.	3914.7	432.58	1.2603
	1.4000	5.27268E-05	1284.7	22.502	0.99454	10280.	570.00	1284.9
15	49.00	7.55067E-05	9.7033	0.18144	20250.	3914.7	432.44	1.2612
	1.4000	5.27447E-03	1285.3	24.050	1.0710	10293.	570.00	1285.6
16	56.25	9.08912E-03	10.395	0.20873	21693.	5914.7	452.48	1.2609
	1.4000	5.27392E-03	1285.1	25.741	1.1475	10289.	570.00	1285.4
17	64.00	8.62319E-03	11.071	0.23656	23121.	5914.7	432.74	1.2593
	1.4000	5.27076E-03	1283.9	27.431	1.2240	10267.	570.00	1284.1
18	72.25	9.15262E-03	11.731	0.26651	24534.	3914.7	433.19	1.2566
	1.4000	5.26530E-05	1281.7	29.097	1.5005	10230.	570.00	1282.0
19	81.00	9.69029E-03	12.418	0.29850	25975.	5914.7	435.22	1.2564
	1.4000	5.26493E-03	1281.5	30.804	1.5769	10228.	570.00	1281.9
20	90.25	1.02136E-02	13.058	0.55131	27366.	5914.7	433.86	1.2526
	1.4000	5.25717E-03	1278.5	32.438	1.4554	10175.	570.00	1278.9
21	100.00	1.07284E-02	15.670	0.36508	28729.	3914.7	434.78	1.2470
	1.4000	5.24609E-03	1274.1	34.029	1.5299	10100.	570.00	1274.6

ITERATION NO.= 0 X-STATION NO.= 32 Y-INNER = 0.0001 Y-OUTER = 2.0477 OUTPUT NO. = 1

STREAMLINE %		W1	W2	W3	W4	P-STAT	TEMP(P)	MACH NO
	CP/CV	DENSITY	U	V	FLOW ANG(D)	P-STAG	T-STAG	VELOCITY
1	0.0	5.18313E-07	6.56371E-04	0.0	1.3871	3875.9	435.70	1.2414
	1.4000	5.18313E-03	1270.2	0.0	0.0	9925.9	570.00	1270.2
2	0.25	5.31103E-04	0.67448	9.00683E-04	1421.3	3875.9	435.76	1.2411
	1.4000	5.18269E-03	1270.0	1.6959	7.65110E-02	9921.6	570.00	1270.0
3	1.00	1.06129E-03	1.3470	3.59740E-03	2839.9	3875.9	435.92	1.2401
	1.4000	5.18094E-03	1269.2	3.3896	0.15302	9908.5	570.00	1269.2
4	2.25	1.59065E-03	2.0168	8.07950E-03	4255.7	3875.9	436.19	1.2385
	1.4000	5.17730E-03	1267.9	5.0793	0.22953	9856.8	570.00	1267.9
5	4.00	2.11887E-03	2.6825	1.43291E-02	5667.4	3875.9	436.58	1.2361
	1.4000	5.17275E-03	1266.1	6.7626	0.30694	9556.4	570.00	1266.1
6	6.25	2.65049E-03	3.3598	2.24332E-02	7090.8	3875.9	436.24	1.2382
	1.4000	5.17672E-03	1267.6	8.4638	0.39255	9882.9	570.00	1267.7
7	9.00	3.19931E-03	4.0610	3.29378E-02	8538.9	3875.9	435.04	1.2455
	1.4000	5.19107E-03	1273.3	10.202	0.45906	9979.2	570.00	1273.4
8	12.25	3.73441E-03	4.7830	4.47092E-02	10009.	3875.9	433.45	1.2551
	1.4000	5.21010E-03	1280.8	11.972	0.53596	10108.	570.00	1280.8
9	16.00	4.28336E-03	5.5175	5.89431E-02	11491.	3875.9	431.88	1.2646
	1.4000	5.22908E-03	1288.1	13.761	0.61206	10237.	570.00	1288.2
10	20.25	4.82684E-03	6.2338	7.49195E-02	12955.	3875.9	431.15	1.2690
	1.4000	5.23769E-03	1291.5	15.521	0.69857	10258.	570.00	1291.6
11	25.00	5.36374E-03	6.9284	9.25191E-02	14397.	3875.9	431.10	1.2693
	1.4000	5.23852E-03	1291.7	17.249	0.76506	10302.	570.00	1291.8
12	30.25	5.89538E-03	7.6187	0.11191	15834.	3875.9	431.15	1.2690
	1.4000	5.23791E-03	1291.4	18.970	0.84156	10298.	570.00	1291.8
13	36.00	6.43303E-03	8.3025	0.13304	17265.	3875.9	431.32	1.2679
	1.4000	5.23579E-03	1290.6	20.681	0.91835	10283.	570.00	1290.8
14	42.25	6.96850E-03	8.9923	0.15610	18701.	3875.9	431.36	1.2677
	1.4000	5.23536E-03	1290.4	22.401	0.99454	10280.	570.00	1290.6
15	49.00	7.50707E-03	9.6521	0.18120	20148.	3875.9	431.21	1.2686
	1.4000	5.23715E-03	1291.1	24.137	1.0710	10293.	570.00	1291.3
16	56.25	8.04241E-03	10.381	0.20794	21585.	3875.9	431.25	1.2683
	1.4000	5.23660E-03	1290.8	25.856	1.1475	10289.	570.00	1291.1
17	64.00	8.57338E-03	11.056	0.23622	23006.	3875.9	431.51	1.2667
	1.4000	5.23346E-03	1289.6	27.593	1.2240	10267.	570.00	1289.9
18	72.25	9.09975E-03	11.716	0.26596	24411.	3875.9	431.96	1.2640
	1.4000	5.22804E-03	1287.5	29.227	1.3035	10230.	570.00	1287.8
19	81.00	9.63433E-03	12.402	0.29810	25845.	3875.9	431.99	1.2639
	1.4000	5.22767E-03	1287.3	30.942	1.3769	10228.	570.00	1287.7
20	90.25	1.01546E-02	13.041	0.33358	27229.	3875.9	432.63	1.2600
	1.4000	5.21997E-03	1284.3	32.584	1.4534	10175.	570.00	1284.7
21	100.00	1.06664E-02	13.652	0.36462	28585.	3875.9	433.54	1.2545
	1.4000	5.20896E-03	1279.9	34.184	1.5299	10100.	570.00	1280.4

ITERATION NO.= 0 X-STATION NO.= 33 Y-INNER = 0.0001 Y-OUTER = 2.0504 OUTPUT NO. = 1

	STREAMLINE % / CP/CV	W1 / DENSITY	W2 / U	W3 / V	W4 / FLOW ANG(D)	P-STAT / P-STAG	TEMP(R) / T-STAG	MACH NO / VELOCITY
1	0.0	5.14770E-07	6.56747E-04	0.0	1.3766	3838.4	434.49	1.2487
	1.4000	5.14720E-03	1275.9	0.0	0.0	9925.9	570.00	1275.9
2	0.25	5.28111E-04	0.67370	8.99635E-04	1414.4	3838.4	434.55	1.2484
	1.4000	5.14656E-03	1275.7	1.7035	7.65109E-02	9921.5	570.00	1275.7
3	1.00	1.05531E-03	1.3454	3.59326E-03	2826.0	3838.4	434.71	1.2474
	1.4000	5.14463E-03	1274.9	3.4049	0.15302	9908.5	570.00	1274.9
4	2.25	1.58172E-03	2.0145	8.07027E-03	4235.0	3838.4	434.98	1.2458
	1.4000	5.14141E-03	1273.6	5.1022	0.22953	9886.8	570.00	1273.6
5	4.00	2.10694E-03	2.6796	1.43130E-02	5639.9	3838.4	435.36	1.2435
	1.4000	5.13689E-03	1271.8	6.7933	0.30604	9856.5	570.00	1271.8
6	6.25	2.63556E-03	3.3960	2.24077E-02	7056.4	3838.4	435.03	1.2455
	1.4000	5.14083E-03	1273.4	8.5020	0.38255	9882.9	570.00	1273.4
7	9.00	3.17134E-03	4.0562	3.24991E-02	8497.4	3838.4	433.83	1.2528
	1.4000	5.15507E-03	1279.0	10.248	0.45906	9979.2	570.00	1279.1
8	12.25	3.71337E-03	4.7770	4.46530E-02	9959.9	3838.4	432.24	1.2623
	1.4000	5.17393E-03	1286.4	12.025	0.53556	10108.	570.00	1286.5
9	16.00	4.25924E-03	5.5102	5.98657E-02	11435.	3838.4	430.68	1.2718
	1.4000	5.19283E-03	1293.7	13.821	0.61206	10237.	570.00	1293.8
10	20.25	4.79965E-03	6.2253	7.48182E-02	12892.	3838.4	429.95	1.2762
	1.4000	5.20157E-03	1297.0	15.568	0.68857	10298.	570.00	1297.1
11	25.00	5.33353E-03	6.9190	9.23934E-02	14327.	3838.4	429.90	1.2765
	1.4000	5.20220E-03	1297.3	17.329	0.76506	10302.	570.00	1297.4
12	30.25	5.86615E-03	7.6084	0.11176	15757.	3838.4	429.95	1.2762
	1.4000	5.20160E-03	1297.0	19.052	0.84156	10298.	570.00	1297.1
13	36.00	6.39679E-03	8.2913	0.13286	17180.	3838.4	430.12	1.2751
	1.4000	5.19949E-03	1296.2	20.770	0.91805	10283.	570.00	1296.3
14	42.25	6.92926E-03	8.9802	0.15589	18610.	3838.4	430.16	1.2749
	1.4000	5.19907E-03	1296.0	22.498	0.99454	10280.	570.00	1296.2
15	49.00	7.46479E-03	9.6791	0.18095	20050.	3838.4	430.01	1.2758
	1.4000	5.20084E-03	1296.6	24.241	1.0710	10293.	570.00	1296.9
16	56.25	7.99711E-03	10.367	0.20766	21480.	3838.4	430.06	1.2756
	1.4000	5.20030E-03	1296.4	25.967	1.1475	10289.	570.00	1296.6
17	64.00	8.52509E-03	11.041	0.23591	22894.	3838.4	430.32	1.2740
	1.4000	5.19717E-03	1295.2	27.672	1.2240	10267.	570.00	1295.4
18	72.25	9.04[illegible]E-03	11.700	0.26561	24293.	3838.4	430.76	1.2713
	1.4000	5.19180E-03	1293.0	29.354	1.3005	10230.	570.00	1293.4
19	81.00	9.58906E-03	12.386	0.29771	25719.	3838.4	430.79	1.2711
	1.4000	5.19143E-03	1292.9	31.076	1.3769	10228.	570.00	1293.2
20	90.25	1.00974E-02	13.024	0.33045	27097.	3838.4	431.43	1.2673
	1.4000	5.18379E-03	1289.9	32.727	1.4534	10175.	570.00	1290.3
21	100.00	1.06064E-02	13.635	0.36416	28446.	3838.4	432.34	1.2618
	1.4000	5.17285E-03	1285.6	34.334	1.5299	10100.	570.00	1286.0

ITERATION NO.= 0 X-STATION NO.= 34 Y-INNER = 0.0001 Y-OUTER = 2.0531 OUTPUT NO. = 1

	STREAMLINE % / CP/CV	W1 / DENSITY	W2 / U	W3 / V	W4 / FLOW ANG(O)	P-STAT / P-STAG	TEMP(R) / T-STAG	MACH NO / VELOCITY
1	0.0	5.11224E-07	6.55127E-04	0.0	1.3762	3801.9	433.31	1.2559
	1.4000	5.11224E-03	1281.5	0.0	0.0	9925.9	570.00	1281.5
2	0.25	5.25209E-04	0.67292	8.98591E-04	1407.7	3801.9	433.36	1.2556
	1.4000	5.11163E-03	1281.2	1.7109	7.65110E-02	9921.5	570.00	1281.2
3	1.00	1.04951E-03	1.3459	3.58912E-05	2812.7	3801.9	433.53	1.2546
	1.4000	5.10968E-03	1280.5	3.4198	0.15302	9908.5	570.00	1280.5
4	2.25	1.57303E-03	2.0122	8.06107E-03	4214.9	3801.9	433.80	1.2529
	1.4000	5.10649E-05	1279.2	5.1245	0.22953	9886.8	570.00	1279.2
5	4.00	2.09536E-03	2.6766	1.42969E-02	5615.1	3801.9	434.18	1.2506
	1.4000	5.10200E-05	1277.4	6.8231	0.50604	9856.4	570.00	1277.4
6	6.25	2.62108F-05	5.3522	2.23821F-02	7022.9	3801.9	433.55	1.2526
	1.4000	5.10551E-05	1278.9	8.5303	0.38255	9852.9	570.00	1279.0
7	9.00	3.15392E-05	4.0516	3.24604E-02	8457.1	3801.9	452.65	1.2599
	1.4000	5.12007E-05	1284.5	10.292	0.45906	9979.2	570.00	1284.6
8	12.25	3.69297E-03	4.7710	4.45969E-02	9912.6	3801.9	431.07	1.2694
	1.4000	5.13884E-03	1291.9	12.076	0.53556	10108.	570.00	1292.0
9	16.00	4.23584E-05	5.5029	5.87876E-02	11381.	3801.9	429.50	1.2739
	1.4000	5.15756E-03	1299.1	13.879	0.61207	10237.	570.00	1299.2
10	20.25	4.77328E-05	6.2170	7.47175E-02	12831.	3801.9	425.78	1.2853
	1.4000	5.16625E-03	1302.5	15.653	0.68857	10298.	570.00	1302.5
11	25.00	5.30422E-03	6.9296	9.22092E-02	14259.	3801.9	428.73	1.2836
	1.4000	5.16687E-05	1302.7	17.595	0.76506	10302.	570.00	1302.8
12	30.25	5.83392E-03	7.5982	0.11161	15682.	3801.9	428.78	1.2833
	1.4000	5.16627E-03	1302.4	19.131	0.84156	10298.	570.00	1302.4
13	36.00	6.36165E-03	8.2802	0.15249	17099.	3801.9	428.95	1.2822
	1.4000	5.16418E-03	1301.6	20.857	0.91805	10283.	570.00	1301.8
14	42.25	6.89118E-03	8.9682	0.15569	18522.	3801.9	428.99	1.2820
	1.4000	5.16576E-03	1301.4	22.592	0.99454	10280.	570.00	1301.6
15	49.00	7.42377E-03	9.6660	0.18071	19955.	3801.9	428.84	1.2829
	1.4000	5.16552E-03	1302.0	24.342	1.0710	10295.	570.00	1302.3
16	56.25	7.95317E-03	10.353	0.20738	21377.	3801.9	428.89	1.2826
	1.4000	5.16458E-03	1301.8	26.076	1.1475	10289.	570.00	1302.1
17	64.00	8.47829E-03	11.027	0.23559	22785.	3801.9	429.14	1.2811
	1.4000	5.16187E-05	1300.6	27.788	1.2240	10267.	570.00	1300.9
18	72.25	8.99879E-05	11.665	0.26526	24177.	3801.9	429.59	1.2784
	1.4000	5.15654E-03	1298.5	29.477	1.5005	10250.	570.00	1298.8
19	81.00	9.52743F-03	12.369	0.29752	25597.	3801.9	429.62	1.2782
	1.4000	5.15617E-05	1298.5	31.207	1.5769	10228.	570.00	1298.7
20	90.25	1.00419E-02	13.007	0.33003	26968.	3801.9	430.25	1.2744
	1.4000	5.14857E-03	1295.3	32.865	1.4554	10175.	570.00	1295.7
21	100.00	1.05481E-02	13.618	0.56371	28311.	3801.9	431.16	1.2689
	1.4000	5.13772E-05	1291.1	34.461	1.5299	10100.	570.00	1291.5

ITERATION NO. = 0 X-STATION NO. = 35 Y-INNER = 0.0001 Y-OUTER = 2.0557 OUTPUT NO. = 1

STREAMLINE	% / CP/CV	W1 / DENSITY	W2 / U	W3 / V	W4 / FLOW ANG(D)	P-STAT / P-STAG	TEMP(R) / T-STAG	MACH NO / VELOCITY
1	0.0	5.07811E-07	6.53909E-04	0.0	1.3621	3766.5	432.15	1.2629
	1.4000	5.07813E-03	1286.9	0.0	0.0	9925.9	570.00	1286.9
2	0.25	5.22386E-04	0.67213	8.97541E-04	1401.2	3766.5	432.21	1.2626
	1.4000	5.07750E-03	1286.7	1.7192	7.65110E-02	9921.5	570.00	1286.7
3	1.00	1.04387E-03	1.3423	3.58495E-03	2799.6	3766.5	432.37	1.2616
	1.4000	5.07559E-03	1285.9	3.4343	0.15302	9908.5	570.00	1285.9
4	2.25	1.56457E-03	2.0099	8.05181E-03	4195.4	3766.5	432.64	1.2600
	1.4000	5.07241E-03	1284.6	5.1463	0.22953	9886.8	570.00	1284.6
5	4.00	2.08410E-03	2.6735	1.42507E-02	5587.1	3766.5	433.02	1.2577
	1.4000	5.06796E-03	1282.8	6.8522	0.30604	9856.5	570.00	1282.9
6	6.25	2.60699E-03	3.3494	2.23565E-02	6993.4	3766.5	432.69	1.2597
	1.4000	5.07184E-03	1284.4	8.5756	0.39255	9582.9	570.00	1284.4
7	9.00	3.13697E-03	4.0465	3.24216E-02	8417.9	3766.5	431.49	1.2669
	1.4000	5.08591E-03	1289.9	10.335	0.45906	9979.2	570.00	1290.0
8	12.25	3.67313E-03	4.7690	4.45409E-02	9856.6	3766.5	429.91	1.2764
	1.4000	5.10456E-03	1297.2	12.126	0.53556	10108.	570.00	1297.3
9	16.00	4.21307E-03	5.4957	5.87101E-02	11328.	3766.5	429.35	1.2858
	1.4000	5.12315E-03	1304.4	13.935	0.61207	10237.	570.00	1304.5
10	20.25	4.74761E-03	6.2066	7.46170E-02	12771.	3766.5	427.63	1.2902
	1.4000	5.13178E-03	1307.7	15.717	0.68857	10298.	570.00	1307.8
11	25.00	5.27571E-03	6.9003	9.21448E-02	14192.	3766.5	427.58	1.2905
	1.4000	5.13240E-03	1307.9	17.466	0.76506	10302.	570.00	1308.1
12	30.25	5.80296E-03	7.5880	0.11146	15609.	3766.5	427.63	1.2902
	1.4000	5.13169E-03	1307.7	19.209	0.84156	10298.	570.00	1307.8
13	36.00	6.32746E-03	8.2691	0.13251	17019.	3766.5	427.81	1.2891
	1.4000	5.12972E-03	1306.9	20.942	0.91805	10283.	570.00	1307.0
14	42.25	6.85414E-03	8.9562	0.15548	18436.	3766.5	427.84	1.2889
	1.4000	5.12930E-03	1306.7	22.684	0.99454	10280.	570.00	1306.9
15	49.00	7.38386E-03	9.6530	0.18047	19862.	3766.5	427.69	1.2878
	1.4000	5.13105E-03	1307.3	24.441	1.0710	10293.	570.00	1307.5
16	56.25	7.91042E-03	10.340	0.20711	21278.	3766.5	427.74	1.2895
	1.4000	5.13052E-03	1307.1	26.181	1.1475	10289.	570.00	1307.3
17	64.00	8.43268E-03	11.012	0.23528	22679.	3766.5	428.00	1.2880
	1.4000	5.12743E-03	1305.9	27.901	1.2240	10267.	570.00	1306.2
18	72.25	8.95041E-03	11.669	0.26491	24065.	3766.5	428.44	1.2853
	1.4000	5.12213E-03	1303.8	29.597	1.3005	10230.	570.00	1304.1
19	81.00	9.47622E-03	12.353	0.29693	25478.	3766.5	428.47	1.2851
	1.4000	5.12177E-03	1303.6	31.334	1.3769	10228.	570.00	1304.0
20	90.25	9.98791E-03	12.991	0.32960	26542.	3766.5	429.10	1.2813
	1.4000	5.11422E-03	1300.6	33.009	1.4534	10175.	570.00	1301.1
21	100.00	1.04914E-02	13.601	0.36325	29180.	3766.5	430.01	1.2758
	1.4000	5.10344E-03	1296.4	34.624	1.5299	10109.	570.00	1296.9

ITERATION NO.= 0 X-STATION NO.= 36 Y-INNER = 0.0001 Y-OUTER = 2.0584 OUTPUT NO. = 1

STREAMLINE %	W1	W2	W3	W4	P-STAT	TEMP(R)	MACH NO
CP/CV	DENSITY	U	V	FLOW ANG(D)	P-STAG	T-STAG	VELOCITY
1 0.0	5.04486E-07	6.51893E-04	0.0	1.3542	3732.0	431.02	1.2698
1.4000	5.04486E-03	1292.2	0.0	0.0	9925.9	570.00	1292.2
2 0.25	5.15640E-04	0.67134	8.96492E-04	1394.8	3732.0	431.07	1.2694
1.4000	5.04424E-03	1291.9	1.7252	7.65110E-02	9921.5	570.00	1291.9
3 1.00	1.03839E-03	1.3407	3.58078E-03	2756.9	3732.0	431.23	1.2684
1.4000	5.04234E-03	1291.2	3.4484	0.15302	9908.5	570.00	1291.2
4 2.25	1.55625E-03	2.0076	8.04253E-03	4176.4	3732.0	431.50	1.2668
1.4000	5.03919E-03	1289.9	5.1676	0.22953	9886.8	570.00	1289.9
5 4.00	2.07315E-03	2.6705	1.42645E-02	5561.8	3732.0	431.88	1.2645
1.4000	5.03476E-03	1288.1	6.8806	0.30604	9856.4	570.00	1288.2
6 6.25	2.59329E-03	3.3445	2.23308E-02	6958.7	3732.0	431.55	1.2665
1.4000	5.03802E-03	1289.7	8.6110	0.38255	9862.9	570.00	1289.7
7 9.00	3.12049E-03	4.0417	3.23825E-02	8379.7	3732.0	430.36	1.2737
1.4000	5.05260E-03	1295.2	10.378	0.45906	9979.2	570.00	1295.3
8 12.25	3.65382E-03	4.7590	4.44849E-02	9821.8	3732.0	428.79	1.2832
1.4000	5.07112E-03	1302.5	12.175	0.53556	10108.	570.00	1302.5
9 16.00	4.15093E-03	5.4885	5.86329E-02	11277.	3732.0	427.23	1.2926
1.4000	5.08959E-03	1309.6	13.990	0.61206	10237.	570.00	1309.7
10 20.25	4.72268E-03	6.2003	7.45170E-02	12713.	3732.0	426.51	1.2970
1.4000	5.09816E-03	1312.9	15.779	0.68857	10298.	570.00	1313.0
11 25.00	5.24798E-03	6.8911	9.20211E-02	14128.	3732.0	426.48	1.2973
1.4000	5.09678E-03	1313.1	17.535	0.76506	10302.	570.00	1313.2
12 30.25	5.77206E-03	7.5770	0.11131	15538.	3732.0	426.51	1.2970
1.4000	5.09819E-03	1312.8	19.284	0.84156	10298.	570.00	1313.0
13 36.00	6.29420E-03	8.2581	0.13233	16942.	3732.0	426.68	1.2959
1.4000	5.09612E-03	1312.0	21.074	0.91805	10283.	570.00	1312.2
14 42.25	6.81812E-03	8.9442	0.15527	18352.	3732.0	426.72	1.2957
1.4000	5.09570E-03	1311.8	22.773	0.99454	10280.	570.00	1312.0
15 49.00	7.34506E-03	9.6401	0.18022	19772.	3732.0	425.57	1.2966
1.4000	5.09744E-03	1312.5	24.537	1.0710	10293.	570.00	1312.7
16 56.25	7.86885E-03	10.326	0.20683	21181.	3732.0	426.62	1.2963
1.4000	5.09691E-03	1312.2	26.285	1.1475	10289.	570.00	1312.5
17 64.00	8.38837E-03	10.997	0.23497	22576.	3732.0	426.87	1.2948
1.4000	5.09385E-03	1311.0	28.011	1.2240	10267.	570.00	1311.3
18 72.25	8.90338E-03	11.654	0.26456	23956.	3732.0	427.31	1.2921
1.4000	5.08858E-03	1309.0	29.715	1.3005	10230.	570.00	1309.3
19 81.00	9.42641E-03	12.337	0.29654	25362.	3732.0	427.34	1.2919
1.4000	5.08821E-03	1308.8	31.458	1.3769	10228.	570.00	1309.1
20 90.25	9.93542E-03	12.974	0.32918	26721.	3732.0	427.98	1.2881
1.4000	5.08072E-03	1305.8	33.132	1.4534	10175.	570.00	1306.3
21 100.00	1.04363E-02	13.584	0.36280	28052.	3732.0	428.88	1.2827
1.4000	5.07001E-03	1301.6	34.743	1.5299	10100.	570.00	1302.1

ITERATION NO.= 0 X-STATION NO.= 37 Y-INNER = 0.0001 Y-OUTER = 2.0611 OUTPUT NO. = 1

STREAMLINE	% / CP/CV	W1 / DENSITY	W2 / U	W3 / V	W4 / FLOW ANG(D)	P-STAT / P-STAG	TEMP(R) / T-STAG	MACH NO / VELOCITY
1	0.0	5.01225E-07	6.50277E-04	0.0	1.3464	3698.2	429.90	1.2765
	1.4000	5.01225E-03	1297.4	0.0	0.0	9925.0	570.00	1297.4
2	0.25	5.16954E-04	0.67055	8.95436E-04	1388.6	3698.2	429.95	1.2762
	1.4000	5.01163E-03	1297.1	1.7321	7.65110E-02	9921.5	570.00	1297.1
3	1.00	1.03302E-03	1.3392	3.57659E-03	2774.5	3698.2	430.12	1.2752
	1.4000	5.00974E-03	1296.4	3.4623	0.15302	9908.5	570.00	1296.4
4	2.25	1.54671E-03	2.0052	8.03320E-03	4157.7	3699.2	430.38	1.2736
	1.4000	5.00661E-03	1295.1	5.1896	0.22953	9886.8	570.00	1295.1
5	4.00	2.06243E-03	2.6675	1.42481E-02	5537.0	3698.2	430.76	1.2713
	1.4000	5.00221E-03	1293.4	6.9084	0.30604	9856.4	570.00	1293.4
6	6.25	2.57589E-03	3.3406	2.23049E-02	6927.7	3698.2	430.43	1.2733
	1.4000	5.00605E-03	1294.9	8.6457	0.38255	9882.9	570.00	1294.9
7	9.00	3.10436E-03	4.0368	3.22439E-02	8342.4	3698.2	429.24	1.2805
	1.4000	5.01993E-03	1300.4	10.419	0.45906	9979.2	570.00	1300.4
8	12.25	3.63494E-03	4.7530	4.44288E-02	9778.0	3698.2	427.67	1.2899
	1.4000	5.03833E-03	1307.6	12.223	0.53556	10108.	570.00	1307.6
9	16.00	4.16527E-03	5.4812	5.85596E-02	11226.	3698.2	426.12	1.2993
	1.4000	5.05668E-03	1314.7	14.045	0.61207	10237.	570.00	1314.7
10	20.25	4.69827E-03	6.1919	7.44169E-02	12657.	3698.2	425.41	1.3036
	1.4000	5.06520E-03	1317.9	15.839	0.68857	10298.	570.00	1318.0
11	25.00	5.22087E-03	6.8818	9.18973E-02	14065.	3699.2	425.35	1.3039
	1.4000	5.06581E-03	1318.1	17.602	0.76506	10302.	570.00	1318.2
12	30.25	5.74224E-03	7.5676	0.11116	15469.	3698.2	425.40	1.3037
	1.4000	5.06523E-03	1317.9	19.358	0.84156	10298.	570.00	1318.0
13	36.00	6.26168E-03	8.2471	0.13215	16866.	3698.2	425.58	1.3026
	1.4000	5.06317E-03	1317.1	21.105	0.91505	10283.	570.00	1317.2
14	42.25	6.78289E-03	8.9323	0.15506	18270.	3698.2	425.61	1.3024
	1.4000	5.06276E-03	1316.9	22.861	0.99454	10280.	570.00	1317.1
15	49.00	7.30711E-03	9.6272	0.17998	19684.	3698.2	425.47	1.3033
	1.4000	5.06449E-03	1317.5	24.631	1.0710	10293.	570.00	1317.7
16	56.25	7.82819E-03	10.312	0.20655	21087.	3698.2	425.51	1.3030
	1.4000	5.06396E-03	1317.3	26.356	1.1475	10289.	570.00	1317.5
17	64.00	8.34502E-03	10.983	0.23465	22475.	3698.2	425.77	1.3015
	1.4000	5.06091E-03	1316.1	28.119	1.2240	10267.	570.00	1316.4
18	72.25	8.85737E-03	11.639	0.26421	23849.	3698.2	426.21	1.2988
	1.4000	5.05568E-03	1314.0	29.830	1.3005	10230.	570.00	1314.4
19	81.00	9.37771E-03	12.321	0.29615	25249.	3698.2	426.24	1.2986
	1.4000	5.05532E-03	1313.8	31.580	1.3769	10228.	570.00	1314.2
20	90.25	9.85409E-03	12.957	0.32875	26602.	3698.2	426.87	1.2948
	1.4000	5.04788E-03	1310.9	33.261	1.4534	10175.	570.00	1311.3
21	100.00	1.03823E-02	13.567	0.36234	27927.	3698.2	427.77	1.2896
	1.4000	5.03723E-03	1306.7	34.930	1.5299	10103.	570.00	1307.2

ITERATION NO. = 0 X-STATION NO. = 38 Y-INNER = 0.0001 Y-OUTER = 2.0638 OUTPUT NO. = 1

	STREAMLINE % / CP/CV	W1 / DENSITY	W2 / U	W3 / V	W4 / FLOW ANGL(D)	P-STAT / P-STAG	TEMP(R) / T-STAG	MACH NO / VELOCITY
1	0.0	4.98047E-07	6.48667E-04	0.0	1.3388	3665.4	428.81	1.2831
	1.4000	4.98047E-03	1302.4	0.0	0.0	9925.9	570.00	1302.4
2	0.25	5.14343E-04	0.66576	8.94383E-04	1382.5	3665.4	428.86	1.2828
	1.4000	4.97985E-03	1302.2	1.7389	7.65110E-02	9921.5	570.00	1302.2
3	1.00	1.02780E-03	1.3376	3.57241E-03	2762.4	3665.4	429.02	1.2818
	1.4000	4.97798E-03	1301.4	3.4758	0.15302	9908.5	570.00	1301.4
4	2.25	1.54049E-03	2.0029	8.02390E-03	4139.6	3665.4	429.29	1.2802
	1.4000	4.97486E-03	1300.2	5.2087	0.22955	9886.8	570.00	1300.2
5	4.00	2.05202E-03	2.6644	1.42315E-02	5512.9	3665.4	429.67	1.2779
	1.4000	4.97349E-03	1298.4	6.9355	0.30604	9856.4	570.00	1298.4
6	6.25	2.56687E-03	3.3348	2.22791E-02	6897.5	3665.4	429.34	1.2799
	1.4000	4.97430E-03	1299.9	8.6795	0.38255	9882.9	570.00	1300.0
7	9.00	3.08868E-03	4.0320	3.23050E-02	8306.0	3665.4	428.15	1.2871
	1.4000	4.98810E-03	1305.4	10.459	0.45906	9979.2	570.00	1305.4
8	12.25	3.61659E-03	4.7470	4.43729E-02	9735.4	3665.4	426.59	1.2965
	1.4000	5.00638E-03	1312.6	12.269	0.53556	10108.	570.00	1312.6
9	16.00	4.14822E-03	5.4740	5.84788E-02	11177.	3665.4	425.04	1.3059
	1.4000	5.02462E-03	1319.6	14.097	0.61207	10237.	570.00	1319.7
10	20.25	4.67455E-03	6.1837	7.43173E-02	12601.	3665.4	424.32	1.3102
	1.4000	5.03308E-03	1322.8	15.898	0.68857	10298.	570.00	1322.9
11	25.00	5.19451E-03	6.8726	9.17743E-02	14004.	3665.4	424.27	1.3105
	1.4000	5.03369E-03	1323.0	17.668	0.76506	10302.	570.00	1323.2
12	30.25	5.71325E-03	7.5575	0.11101	15402.	3665.4	424.32	1.3102
	1.4000	5.03311E-03	1322.8	19.431	0.84156	10298.	570.00	1322.9
13	36.00	6.23007E-03	8.2261	0.13198	16793.	3665.4	424.49	1.3091
	1.4000	5.03107E-03	1322.0	21.184	0.91805	10283.	570.00	1322.2
14	42.25	6.74865E-03	8.9204	0.15486	18190.	3665.4	424.53	1.3089
	1.4000	5.03066E-03	1321.8	22.946	0.99454	10280.	570.00	1322.0
15	49.00	7.27021E-03	9.6144	0.17974	19598.	3665.4	424.39	1.3098
	1.4000	5.03237E-03	1322.4	24.723	1.0710	10293.	570.00	1322.7
16	56.25	7.78947E-03	10.298	0.20628	20995.	3665.4	424.43	1.3095
	1.4000	5.03185E-03	1322.2	26.484	1.1475	10289.	570.00	1322.5
17	64.00	8.30289E-03	10.968	0.23434	22377.	3665.4	424.68	1.3080
	1.4000	5.02883E-03	1321.0	28.224	1.2240	10267.	570.00	1321.3
18	72.25	8.81265E-03	11.624	0.26387	23745.	3665.4	425.12	1.3053
	1.4000	5.02362E-03	1319.0	29.942	1.3005	10230.	570.00	1319.3
19	81.00	9.33037E-03	12.305	0.29576	25139.	3665.4	425.15	1.3052
	1.4000	5.02327E-03	1318.8	31.699	1.3769	10228.	570.00	1319.2
20	90.25	9.83419E-03	12.941	0.32833	26486.	3665.4	425.78	1.3014
	1.4000	5.01587E-03	1315.9	33.387	1.4534	10175.	570.00	1316.3
21	100.00	1.03299E-02	13.550	0.36189	27805.	3665.4	426.68	1.2959
	1.4000	5.00529E-03	1311.7	35.033	1.5299	10100.	570.00	1312.2

ITERATION NO.= 0 X-STATION NO.= 39 Y-INNER = 0.0001 Y-OUTER = 2.0665 OUTPUT NO. = 1

	STREAMLINE % / CP/CV	W1 / DENSITY	W2 / U	W3 / V	W4 / FLOW ANG(D)	P-STAT / P-STAG	TEMP(R) / T-STAG	MACH NO / VELOCITY
1	0.0	4.94938E-07	6.47063E-04	0.0	1.3313	3633.5	427.76	1.2996
	1.4000	4.94938E-03	1307.4	0.0	0.0	9925.9	570.00	1307.4
2	0.25	5.11797E-04	0.66858	8.93330E-04	1376.6	3633.5	427.79	1.2893
	1.4000	4.94877E-03	1307.1	1.7455	7.65110E-02	9921.5	570.00	1307.1
3	1.00	1.02272E-03	1.3360	3.56823E-03	2750.6	3633.5	427.95	1.2883
	1.4000	4.94691E-03	1306.4	3.4890	0.15302	9908.5	570.00	1306.4
4	2.25	1.53267E-03	2.0006	8.01457E-03	4122.0	3633.5	428.22	1.2867
	1.4000	4.94382E-03	1305.1	5.2285	0.22953	9886.9	570.00	1305.1
5	4.00	2.04196E-03	2.6613	1.42155E-02	5489.4	3633.5	428.59	1.2844
	1.4000	4.93947E-03	1303.4	6.9620	0.30604	9856.4	570.00	1303.4
6	6.25	2.55416E-03	3.3329	2.22532E-02	6868.1	3633.5	428.27	1.2864
	1.4000	4.94326E-03	1304.9	8.7126	0.38255	9882.9	570.00	1304.9
7	9.00	3.07329E-03	4.0271	3.22462E-02	8270.6	3633.5	427.08	1.2935
	1.4000	4.95696E-03	1310.3	10.499	0.45906	9979.2	570.00	1310.4
8	12.25	3.59865E-03	4.7410	4.43173E-02	9693.8	3633.5	425.52	1.3029
	1.4000	4.97514E-03	1317.4	12.315	0.53556	10108.	570.00	1317.5
9	16.00	4.12769E-03	5.4669	5.84022E-02	11130.	3633.5	423.98	1.3123
	1.4000	4.99326E-03	1324.4	14.149	0.61206	10237.	570.00	1324.5
10	20.25	4.65141E-03	6.1754	7.42183E-02	12547.	3633.5	423.26	1.3166
	1.4000	5.00167E-03	1327.6	15.956	0.68857	10298.	570.00	1327.7
11	25.00	5.16880E-03	6.8634	9.16520E-02	13944.	3633.5	423.21	1.3169
	1.4000	5.00228E-03	1327.9	17.732	0.75506	10302.	570.00	1328.0
12	30.25	5.69457E-03	7.5474	0.11086	15336.	3633.5	423.26	1.3166
	1.4000	5.00170E-03	1327.6	19.501	0.84156	10298.	570.00	1327.8
13	36.00	6.19922E-03	8.2252	0.13180	16721.	3633.5	423.43	1.3156
	1.4000	4.99967E-03	1326.8	21.261	0.91805	10283.	570.00	1327.0
14	42.25	6.71524E-03	8.9086	0.15465	18112.	3633.5	423.47	1.3153
	1.4000	4.99926E-03	1326.6	23.030	0.99454	10280.	570.00	1326.8
15	49.00	7.23423E-03	9.6016	0.17950	19514.	3633.5	423.32	1.3162
	1.4000	5.00097E-03	1327.2	24.813	1.0710	10293.	570.00	1327.5
16	56.25	7.75011E-03	10.284	0.20600	20905.	3633.5	423.37	1.3160
	1.4000	5.00045E-03	1327.0	26.581	1.1475	10289.	570.00	1327.3
17	64.00	8.26178E-03	10.954	0.23403	22287.	3633.5	423.62	1.3144
	1.4000	4.99744E-03	1325.8	28.327	1.2240	10267.	570.00	1326.1
18	72.25	8.76903E-03	11.608	0.26352	23643.	3633.5	424.06	1.3118
	1.4000	4.99227E-03	1323.8	30.052	1.3005	10230.	570.00	1324.1
19	81.00	9.28417E-03	12.289	0.29538	25032.	3633.5	424.09	1.3116
	1.4000	4.99192E-03	1323.6	31.815	1.3769	10228.	570.00	1324.0
20	90.25	9.78550E-03	12.924	0.32791	26373.	3633.5	424.72	1.3078
	1.4000	4.98456E-03	1320.7	33.510	1.4534	10175.	570.00	1321.2
21	100.00	1.02789E-02	13.533	0.36143	27696.	3633.5	425.61	1.3024
	1.4000	4.97405E-03	1316.6	35.163	1.5299	10100.	570.00	1317.1

ITERATION NO.= 0 X-STATION NO.= 40 Y-INNER = 0.0331 Y-OUTER = 2.0692 OUTPUT NO. = 1

STREAMLINE	% / CP/CV	W1 / DENSITY	W2 / U	W3 / V	W4 / FLOW ANG(D)	P-STAT / P-STAG	TEMP(R) / T-STAG	MACH NO / VELOCITY
1	0.0	4.91897E-07	6.43463E-04	0.0	1.3240	3607.2	426.68	1.2959
	1.4000	4.91897E-03	1312.2	0.0	0.0	9923.9	570.00	1312.2
2	0.23	5.09310E-04	0.66819	8.92277E-04	1370.9	3602.2	426.74	1.2956
	1.4000	4.91835E-03	1311.9	1.7319	7.63109E-02	9921.5	570.00	1311.9
3	1.00	1.01775E-03	1.3343	3.55404E-03	2739.1	3602.2	426.90	1.2946
	1.4000	4.91631E-03	1311.2	3.5019	0.15302	9908.3	570.00	1311.2
4	2.23	1.52342E-03	1.5983	6.05265E-03	4104.7	3602.2	427.14	1.2930
	1.4000	4.91343E-03	1310.0	5.2479	0.22953	9666.8	570.00	1310.0
5	4.00	2.03194E-03	2.6583	1.41931E-02	3456.4	3602.2	427.54	1.2908
	1.4000	4.90911E-03	1308.2	6.9860	0.30604	9836.4	570.00	1308.3
6	6.23	2.34175E-03	3.3290	2.22274E-02	6839.3	3602.2	427.21	1.2927
	1.4000	4.91269E-03	1309.7	8.7449	0.38233	9892.9	570.00	1309.8
7	9.00	3.05846E-03	4.0223	3.22274E-02	6233.9	3602.2	426.03	1.2999
	1.4000	4.92630E-03	1315.1	10.337	0.43906	9979.2	570.00	1315.2
8	12.23	3.38120E-03	4.7331	4.42616E-02	9653.1	3602.2	424.47	1.3093
	1.4000	4.94456E-03	1322.2	12.359	0.33556	10108.	570.00	1322.3
9	16.00	4.10764E-03	3.4397	3.83260E-02	11083.	3602.2	422.93	1.3186
	1.4000	4.96257E-03	1329.2	14.199	0.61206	10237.	570.00	1329.2
10	20.23	4.62881E-03	6.1672	7.41197E-02	12495.	3602.2	422.22	1.3229
	1.4000	4.97093E-03	1332.4	16.013	0.68857	10298.	570.00	1332.5
11	23.00	5.14369E-03	6.8543	9.13300E-02	13885.	3602.2	422.17	1.3232
	1.4000	4.97133E-03	1332.4	17.795	0.76506	10302.	570.00	1332.7
12	30.23	5.63733E-03	7.5374	0.11072	15271.	3602.2	422.22	1.3229
	1.4000	4.97096E-03	1332.3	19.570	0.84156	10298.	570.00	1332.5
13	36.00	6.16911E-03	8.2143	0.13163	16631.	3602.2	422.39	1.3219
	1.4000	4.96894E-03	1331.5	21.337	0.91803	10283.	570.00	1331.7
14	42.25	6.68262E-03	8.6968	0.13445	18036.	3602.2	422.42	1.3216
	1.4000	4.96834E-03	1331.3	23.112	0.99454	10280.	570.00	1331.5
15	49.00	7.19909E-03	9.5888	0.17927	19432.	3602.2	422.28	1.3229
	1.4000	4.97023E-03	1332.0	24.901	1.0710	10293.	570.00	1332.2
16	56.23	7.71247E-03	10.271	0.20573	20817.	3602.2	422.32	1.3223
	1.4000	4.96971E-03	1331.7	26.673	1.1473	10289.	570.00	1332.0
17	64.00	8.22166E-03	10.939	0.23373	22188.	3602.2	422.58	1.3207
	1.4000	4.96673E-03	1330.3	28.428	1.2240	10267.	570.00	1330.6
18	72.25	8.72644E-03	11.393	0.26316	23544.	3602.2	423.02	1.3181
	1.4000	4.96159E-03	1328.5	30.159	1.3003	10230.	570.00	1328.9
19	81.00	9.23906E-03	12.273	0.29499	24927.	3602.2	423.05	1.3179
	1.4000	4.96124E-03	1326.3	31.929	1.3769	10228.	570.00	1326.7
20	90.23	9.73797E-03	12.907	0.32749	26262.	3602.2	423.47	1.3141
	1.4000	4.93393E-03	1323.5	33.620	1.4334	10173.	570.00	1323.9
21	100.00	1.02269E-02	13.516	0.36098	27570.	3602.2	424.57	1.3087
	1.4000	4.94348E-03	1321.4	35.290	1.5299	10100.	570.00	1321.8

ITERATION NO.= 0 X-STATION NO.= 41 Y-INNER = 0.0001 Y-OUTER = 2.0710 OUTPUT NO. = 1

STREAMLINE	% / CP/CV	W1 / DENSITY	W2 / U	W3 / V	W4 / FLOW ANG(D)	P-STAT / P-STAG	TEMP(R) / T-STAG	MACH NO / VELOCITY
1	0.0	4.88914E-07	6.42865E-04	0.0	1.3149	3571.7	425.64	1.3022
	1.4000	4.88913E-03	1316.9	0.0	0.0	9925.9	570.00	1316.9
2	0.25	5.06876E-04	0.66740	8.91221E-04	1365.2	3571.7	425.70	1.3019
	1.4000	4.88452E-03	1316.7	1.7583	7.65110E-02	9921.5	570.00	1316.7
3	1.00	1.01288E-03	1.3329	3.55985E-03	2727.8	3571.7	425.86	1.3009
	1.4000	4.88669E-03	1316.0	3.5146	0.15302	9904.5	570.00	1316.0
4	2.25	1.51813E-03	1.9959	7.99590E-03	4087.8	3571.7	426.12	1.2993
	1.4000	4.88363E-03	1314.7	5.2669	0.22953	9886.8	570.00	1314.7
5	4.00	2.02223E-03	2.6552	1.41827E-02	5443.9	3571.7	426.50	1.2970
	1.4000	4.87934E-03	1313.0	7.0134	0.30504	9856.6	570.00	1313.0
6	6.25	2.52961E-03	3.3251	2.22015E-02	6811.2	3571.7	426.17	1.2990
	1.4000	4.88308E-03	1314.5	5.7767	0.38255	9882.9	570.00	1314.5
7	9.00	3.04385E-03	4.0174	3.21884E-02	8202.0	3571.7	424.99	1.3061
	1.4000	4.89663E-03	1319.9	10.575	0.45906	9979.2	570.00	1319.9
8	12.25	3.56409E-03	4.7291	4.42960E-02	9613.3	3571.7	423.44	1.3155
	1.4000	4.91457E-03	1326.9	12.403	0.53556	10108.	570.00	1326.9
9	16.00	4.08801E-03	5.4526	5.82498E-02	11037.	3571.7	421.90	1.3248
	1.4000	4.93247E-03	1333.8	14.249	0.61206	10237.	570.00	1333.9
10	20.25	4.60670E-03	6.1590	7.40212E-02	12443.	3571.7	421.20	1.3291
	1.4000	4.94079E-03	1337.0	16.068	0.68856	10298.	570.00	1337.1
11	25.00	5.11911E-03	6.8452	9.14083E-02	13828.	3571.7	421.14	1.3294
	1.4000	4.94136E-03	1337.2	17.856	0.76506	10302.	570.00	1337.3
12	30.25	5.63033E-03	7.5274	0.11057	15208.	3571.7	421.19	1.3291
	1.4000	4.94081E-03	1334.9	19.638	0.84156	10298.	570.00	1337.1
13	36.00	6.13564E-03	8.2034	0.13146	16582.	3571.7	421.36	1.3281
	1.4000	4.93880E-03	1336.1	21.411	0.91805	10283.	570.00	1336.3
14	42.25	6.65069E-03	8.8850	0.15424	17962.	3571.7	421.40	1.3279
	1.4000	4.93840E-03	1336.0	23.192	0.99454	10280.	570.00	1336.2
15	49.00	7.16469E-03	9.5761	0.17903	19352.	3571.7	421.25	1.3287
	1.4000	4.94009E-03	1336.6	24.987	1.0710	10293.	570.00	1336.8
16	56.25	7.67562E-03	10.257	0.20544	20731.	3571.7	421.30	1.3285
	1.4000	4.93957E-03	1336.3	26.768	1.1475	10289.	570.00	1336.6
17	64.00	8.18238E-03	10.925	0.23342	22097.	3571.7	421.55	1.3269
	1.4000	4.93661E-03	1335.2	28.527	1.2240	10267.	570.00	1335.5
18	72.25	8.68475E-03	11.578	0.26284	23447.	3571.7	421.98	1.3243
	1.4000	4.93149E-03	1333.2	30.264	1.3005	10230.	570.00	1333.5
19	81.00	9.19494E-03	12.257	0.29461	24824.	3571.7	422.02	1.3241
	1.4000	4.93115E-03	1333.0	32.040	1.3769	10228.	570.00	1333.4
20	90.25	9.69145E-03	12.891	0.32707	26154.	3571.7	422.64	1.3203
	1.4000	4.92384E-03	1330.1	33.748	1.4534	10175.	570.00	1330.6
21	100.00	1.01800E-02	13.499	0.36053	27457.	3571.7	423.53	1.3150
	1.4000	4.91350E-03	1326.1	35.415	1.5299	10100.	570.00	1326.5

ITERATION NO.= 0 X-STATION NO.= 42 Y-INNER = 0.0001 Y-OUTER = 2.0745 OUTPUT NO. = 1

	STREAMLINE %	W1	W2	W3	W4	P-STAT	TEMP(F)	MACH NO
	CP/CV	DENSITY	U	V	FLOW ANG(D)	P-STAG	T-STAG	VELOCITY
1	0.0	4.85990E-07	6.42272E-04	0.0	1.3099	3541.8	424.62	1.3084
	1.4000	4.85989E-03	1321.6	0.0	0.0	9925.9	570.00	1321.6
2	0.25	5.04496E-04	0.46661	8.90167E-06	1359.7	3541.8	424.68	1.3080
	1.4000	4.85929E-03	1321.3	1.7645	7.65110E-02	9921.5	570.00	1321.3
3	1.00	1.00813E-03	1.3313	3.55565E-03	2716.8	3541.8	424.84	1.3071
	1.4000	4.85747E-03	1320.6	3.5270	0.15302	9908.5	570.00	1320.6
4	2.25	1.51100E-03	1.9936	7.98656E-03	4071.3	3541.8	425.10	1.3055
	1.4000	4.85443E-03	1319.6	5.2856	0.22953	9836.8	570.00	1319.4
5	4.00	2.01274E-03	2.6521	1.41663E-02	5421.9	3541.8	425.42	1.3032
	1.4000	4.85016E-03	1317.7	7.0383	0.30606	9856.6	570.00	1317.7
6	6.25	2.51773E-03	3.3213	2.21756E-02	6735.6	3541.8	425.15	1.3052
	1.4000	4.85385E-03	1319.1	8.8078	0.38255	9882.9	570.00	1319.2
7	9.00	3.02956E-03	4.0126	3.21497E-02	8168.8	3541.8	423.98	1.3123
	1.4000	4.56734E-03	1324.5	10.612	0.45906	9979.2	570.00	1324.5
8	12.25	3.54736E-03	4.7232	4.41506E-02	9574.4	3541.8	422.63	1.3216
	1.4000	4.88519E-03	1331.5	12.446	0.53556	10108.	570.00	1331.5
9	16.00	4.06882E-03	5.4455	5.81749E-02	10992.	3541.8	420.89	1.3309
	1.4000	4.90298E-03	1338.3	14.298	0.61207	10237.	570.00	1338.4
10	20.25	4.58508E-03	6.1509	7.39232E-02	12393.	3541.8	420.19	1.3352
	1.4000	4.91124E-03	1341.5	16.123	0.68857	10298.	570.00	1341.6
11	25.00	9.09508E-03	6.8361	9.12871E-02	13772.	3541.8	420.16	1.3355
	1.4000	4.91183E-03	1341.7	17.917	0.76506	10302.	570.00	1341.8
12	30.25	5.60389E-03	7.5174	0.11047	15147.	3541.8	420.18	1.3352
	1.4000	4.91126E-03	1341.5	19.705	0.84156	10298.	570.00	1341.6
13	36.00	6.11082E-03	8.1926	0.13128	16515.	3541.8	420.35	1.3342
	1.4000	4.90927E-03	1340.7	21.483	0.91805	10283.	570.00	1340.8
14	42.25	6.61947E-03	8.8733	0.15404	17889.	3541.8	420.39	1.3340
	1.4000	4.90887E-03	1340.5	23.271	0.99454	10280.	570.00	1340.7
15	49.00	7.13106E-03	9.5636	0.17879	19273.	3541.9	420.29	1.3348
	1.4000	4.91054E-03	1341.1	25.072	1.0710	10293.	570.00	1341.3
16	56.25	7.63959E-03	10.244	0.20519	20647.	3541.8	420.29	1.3346
	1.4000	4.91003E-03	1340.9	26.558	1.1475	10289.	570.00	1341.1
17	64.00	8.14396E-03	10.910	0.23311	22007.	3541.8	420.56	1.3330
	1.4000	4.90708E-03	1339.7	28.624	1.2240	10267.	570.00	1340.0
18	72.25	8.64398E-03	11.563	0.26250	23352.	3541.8	420.98	1.3304
	1.4000	4.90201E-03	1337.7	30.368	1.3005	10230.	570.00	1338.0
19	81.00	9.15178E-03	12.241	0.29423	24723.	3541.8	421.01	1.3302
	1.4000	4.90166E-03	1337.5	32.150	1.3769	10228.	570.00	1337.9
20	90.25	9.64595E-03	12.874	0.32665	26048.	3541.8	421.63	1.3265
	1.4000	4.89444E-03	1334.7	33.864	1.4534	10175.	570.00	1335.1
21	100.00	1.01322E-02	13.482	0.36008	27345.	3541.8	422.52	1.3211
	1.4000	4.88412E-03	1330.6	35.538	1.5299	10100.	570.00	1331.1

ITERATION NO.= 0 X-STATION NO.= 43 Y-INNER = 0.0001 Y-OUTER = 2.0772 OUTPUT NO. = 1

	STREAMLINE % / CP/CV	W1 / DENSITY	W2 / U	W3 / V	W4 / FLOW ANG(D)	P-STAT / P-STAG	TEMP(R) / T-STAG	MACH NO / VELOCITY
1	0.0	4.83121E-07	6.40682E-04	0.0	1.3030	3512.6	423.62	1.3144
	1.4000	4.83121E-03	1326.1	0.0	0.0	9925.9	570.00	1326.1
2	0.25	5.02166E-04	0.66582	8.89112E-04	1354.3	3512.6	423.67	1.3141
	1.4000	4.83061E-03	1325.9	1.7706	7.65113E-02	9921.5	570.00	1325.9
3	1.00	1.03347E-03	1.3298	3.55146E-03	2706.0	3512.6	423.83	1.3131
	1.4000	4.82880E-03	1325.2	3.5392	0.15302	9908.5	570.00	1325.2
4	2.25	1.52403E-03	1.9913	7.97720E-03	4055.1	3512.6	424.10	1.3115
	1.4000	4.82577E-03	1324.0	5.3039	0.22953	9886.8	570.00	1324.0
5	4.00	2.00345E-03	2.6451	1.41499E-02	5400.3	3512.6	424.47	1.3093
	1.4000	4.82154E-03	1322.3	7.0628	0.30604	9856.4	570.00	1322.3
6	6.25	2.50611E-03	3.3174	2.21497E-02	6756.6	3512.6	424.15	1.3113
	1.4000	4.82524E-03	1323.7	8.8383	0.38255	9882.9	570.00	1323.7
7	9.00	3.01557E-03	4.0077	3.21110E-02	8136.2	3512.6	422.97	1.3183
	1.4000	4.83861E-03	1329.0	10.648	0.45926	9979.2	570.00	1329.1
8	12.25	3.53098E-03	4.7173	4.40951E-02	9536.2	3512.6	421.43	1.3277
	1.4000	4.85635E-03	1336.0	12.488	0.53556	10108.	570.00	1336.0
9	16.00	4.05004E-03	5.4384	5.80983E-02	10949.	3512.6	419.90	1.3369
	1.4000	4.87404E-03	1342.8	14.345	0.61207	10237.	570.00	1342.9
10	20.25	4.56391E-03	6.1427	7.38255E-02	12343.	3512.6	419.19	1.3412
	1.4000	4.88225E-03	1345.9	16.176	0.68857	10298.	570.00	1346.0
11	25.00	5.07155E-03	6.8270	9.11662E-02	13717.	3512.6	419.14	1.3415
	1.4000	4.88284E-03	1346.1	17.976	0.76506	10302.	570.00	1346.3
12	30.25	5.57602E-03	7.5075	0.11028	15086.	3512.6	419.19	1.3412
	1.4000	4.88228E-03	1345.9	19.770	0.84156	10298.	570.00	1346.0
13	36.00	6.08263E-03	8.1818	0.13111	16449.	3512.6	419.36	1.3402
	1.4000	4.88029E-03	1345.1	21.555	0.91805	10283.	570.00	1345.3
14	42.25	6.58891E-03	8.8616	0.15384	17818.	3512.6	419.39	1.3400
	1.4000	4.87990E-03	1344.9	23.348	0.99454	10280.	570.00	1345.1
15	49.00	7.09813E-03	9.5508	0.17855	19197.	3512.6	419.25	1.3408
	1.4000	4.88156E-03	1345.3	25.155	1.0710	10293.	570.00	1345.8
16	56.25	7.60431E-03	10.230	0.20492	20565.	3512.6	419.29	1.3406
	1.4000	4.88105E-03	1345.3	26.947	1.1475	10289.	570.00	1345.6
17	64.00	8.10637E-03	10.896	0.23281	21919.	3512.6	419.55	1.3390
	1.4000	4.87812E-03	1344.1	28.719	1.2240	10267.	570.00	1344.5
18	72.25	8.60406E-03	11.548	0.26216	23259.	3512.6	419.98	1.3364
	1.4000	4.87307E-03	1342.2	30.469	1.3005	10230.	570.00	1342.5
19	81.00	9.10952E-03	12.225	0.29355	24624.	3512.6	420.01	1.3362
	1.4000	4.87273E-03	1342.0	32.257	1.3769	10228.	570.00	1342.4
20	90.25	9.60141E-03	12.858	0.32623	25944.	3512.6	420.63	1.3325
	1.4000	4.86555E-03	1339.2	33.977	1.4534	10175.	570.00	1339.6
21	100.00	1.00854E-02	13.465	0.35963	27236.	3512.6	421.52	1.3271
	1.4000	4.85529E-03	1335.1	35.658	1.5299	10100.	570.00	1335.6

ITERATION NO.= 0 X-STATION NO.= 44 Y-INNER = 0.0001 Y-OUTER = 2.0799 OUTPUT NO. = 1

STREAMLINE % / CP/CV		W1 DENSITY	W2 U	W3 V	W4 FLOW ANG(D)	P-STAT / P-STAG	TEMP(R) / T-STAG	MACH NO / VELOCITY
1	0.0	4.80297E-07	6.39092E-04	0.0	1.2962	3483.9	422.63	1.3204
	1.4000	4.80297E-03	1330.4	0.0	0.0	9925.9	570.00	1330.6
2	0.25	4.55876E-04	0.68502	8.88054E-04	1349.3	3483.9	422.68	1.3201
	1.4000	4.80237E-03	1330.4	1.7765	7.65113E-02	9921.5	570.00	1330.4
3	1.00	9.98659E-04	1.3282	3.54726E-03	2595.3	3483.9	422.84	1.3191
	1.4000	4.80037E-03	1329.7	3.5512	0.15302	9908.5	570.00	1329.7
4	2.23	1.45717E-03	1.9889	7.56782E-03	4039.1	3483.9	423.10	1.3175
	1.4000	4.79756E-03	1328.5	3.3219	0.22953	9886.8	570.00	1328.5
5	4.00	1.99431E-03	2.6460	1.41334E-02	5379.1	3483.9	423.48	1.3153
	1.4000	4.79333E-03	1326.8	7.0869	0.30604	9836.4	570.00	1326.8
6	6.23	2.45468E-03	3.3135	2.21735E-02	6730.1	3483.9	423.15	1.3175
	1.4000	4.79702E-03	1328.2	8.8683	0.38255	9882.9	570.00	1328.2
7	9.00	3.00132E-03	4.0029	3.20771E-02	8104.2	3483.9	421.98	1.3243
	1.4000	4.81333E-03	1333.5	10.684	0.43906	9979.2	570.00	1333.5
8	12.23	3.31480E-03	4.7113	4.40397E-02	9498.7	3483.9	425.44	1.3336
	1.4000	4.82796E-03	1340.4	12.529	0.33556	10108.	570.00	1340.5
9	16.00	4.03157E-03	5.4313	5.80226E-02	10906.	3483.9	418.91	1.3429
	1.4000	4.84534E-03	1347.2	14.392	0.51207	10237.	570.00	1347.3
10	20.25	4.34310E-03	6.1344	7.37273E-02	12295.	3483.9	418.21	1.3471
	1.4000	4.85371E-03	1330.3	16.229	0.68857	10298.	570.00	1350.4
11	25.00	5.04843E-03	6.8180	9.10454E-02	13663.	3483.9	418.16	1.3474
	1.4000	4.85429E-03	1350.5	18.034	0.74506	10302.	570.00	1350.6
12	30.25	5.55259E-03	7.4975	0.11013	15027.	3483.9	418.21	1.3471
	1.4000	4.85373E-03	1350.3	19.834	0.84156	10298.	570.00	1350.4
13	36.00	6.05487E-03	8.1710	0.13094	16384.	3483.9	418.38	1.3461
	1.4000	4.83176E-03	1349.5	21.425	0.91805	10283.	570.00	1349.7
14	42.25	6.53897E-03	8.9300	0.15363	17748.	3483.9	418.41	1.3459
	1.4000	4.85137E-03	1349.3	23.424	0.99454	10280.	570.00	1349.5
15	49.00	7.04577E-03	9.3382	0.17832	19121.	3483.9	418.27	1.3468
	1.4000	4.85303E-03	1349.9	25.237	1.0710	10293.	570.00	1350.2
16	56.23	7.56964E-03	10.217	0.20465	20484.	3483.9	418.31	1.3465
	1.4000	4.85252E-03	1349.7	27.035	1.1475	10289.	570.00	1350.0
17	64.00	8.06941E-03	10.882	0.23230	21833.	3483.9	418.56	1.3450
	1.4000	4.84960E-03	1348.5	28.813	1.2240	10267.	570.00	1348.8
18	72.25	8.56483E-03	11.533	0.26181	23167.	3483.9	419.00	1.3424
	1.4000	4.84439E-03	1346.6	30.569	1.3005	10232.	570.00	1346.9
19	81.00	9.06798E-03	12.209	0.29344	24527.	3483.9	419.03	1.3422
	1.4000	4.84424E-03	1346.4	32.343	1.3769	10228.	570.00	1346.8
20	90.25	9.55763E-03	12.841	0.32581	25842.	3483.9	419.45	1.3386
	1.4000	4.83711E-03	1343.6	34.088	1.4534	10175.	570.00	1344.0
21	100.00	1.00394E-02	13.449	0.35918	27129.	3483.8	420.53	1.3331
	1.4000	4.82490E-03	1339.6	35.776	1.5299	10100.	570.00	1340.0

ITERATION NO.= 0 X-STATION NO.= 45 Y-INNER = 0.0001 Y-OUTER = 2.0826 OUTPUT NO. = 1

STREAMLINE %	W1	W2	W3	W4	P-STAT	TEMP(R)	MACH NO
CP/CV	DENSITY	U	V	FLOW ANG(D)	P-STAG	T-STAG	VELOCITY
1 0.0	4.77533E-07	6.37511E-04	0.0	1.2895	3455.8	421.65	1.3263
1.4000	4.77533E-03	1335.0	0.0	0.0	9925.9	570.00	1335.0
2 0.25	4.57639E-04	0.66423	8.86999E-04	1343.7	3455.8	421.71	1.3260
1.4000	4.77473E-03	1334.8	1.7824	7.65110E-02	9921.5	570.00	1334.8
3 1.00	9.94428E-04	1.3266	3.54306E-03	2684.9	3455.8	421.86	1.3250
1.4000	4.77294E-03	1334.1	3.5629	0.15302	9908.5	570.00	1334.1
4 2.25	1.49047E-03	1.9566	7.95948E-03	4023.6	3455.8	422.13	1.3234
1.4000	4.76995E-03	1332.9	5.3396	0.22953	9886.8	570.00	1332.9
5 4.00	1.96539E-03	2.6429	1.41170E-02	5358.3	3455.8	422.50	1.3212
1.4000	4.76577E-03	1331.2	7.1105	0.30504	9856.4	570.00	1331.2
6 6.25	2.48352E-03	3.3096	2.20977E-02	6704.1	3455.8	422.18	1.3232
1.4000	4.76942E-03	1332.6	8.8977	0.35255	9882.9	570.00	1332.7
7 9.00	2.98839E-03	3.9981	3.20334E-02	8073.0	3455.8	421.01	1.3302
1.4000	4.78264E-03	1337.9	10.719	0.45906	9979.2	570.00	1337.9
8 12.25	3.49916E-03	4.7055	4.39846E-02	9462.0	3455.8	419.47	1.3395
1.4000	4.80018E-03	1344.7	12.570	0.53556	10108.	570.00	1344.8
9 16.00	4.01353E-03	5.4243	5.79475E-02	10863.	3455.8	417.95	1.3487
1.4000	4.81766E-03	1351.5	14.438	0.61207	10237.	570.00	1351.6
10 20.25	4.52277E-03	6.1265	7.36308E-02	12247.	3455.8	417.25	1.3530
1.4000	4.82578E-03	1354.6	16.280	0.68857	10298.	570.00	1354.7
11 25.00	5.02585E-03	6.8090	9.09255E-02	13610.	3455.8	417.20	1.3533
1.4000	4.82636E-03	1354.8	18.092	0.76506	10302.	570.00	1354.9
12 30.25	5.52774E-03	7.4877	0.10999	14969.	3455.8	417.24	1.3530
1.4000	4.82580E-03	1354.6	19.897	0.84156	10298.	570.00	1354.7
13 36.00	6.02778E-03	8.1603	0.13076	16321.	3455.8	417.41	1.3519
1.4000	4.82384E-03	1353.8	21.694	0.91805	10283.	570.00	1354.0
14 42.25	6.52952E-03	8.8384	0.15343	17679.	3455.8	417.45	1.3517
1.4000	4.82345E-03	1353.6	23.498	0.99454	10280.	570.00	1353.8
15 49.00	7.03416E-03	9.5257	0.17808	19047.	3455.8	417.30	1.3526
1.4000	4.82510E-03	1354.2	25.317	1.0710	10293.	570.00	1354.4
16 56.25	7.53578E-03	10.203	0.20438	20405.	3455.8	417.35	1.3523
1.4000	4.82459E-03	1354.0	27.121	1.1475	10289.	570.00	1354.2
17 64.00	8.03331E-03	10.868	0.23220	21749.	3455.8	417.60	1.3508
1.4000	4.82170E-03	1352.8	28.904	1.2240	10267.	570.00	1353.1
18 72.25	8.52652E-03	11.518	0.26148	23077.	3455.8	418.03	1.3482
1.4000	4.81670E-03	1350.9	30.666	1.3003	10230.	570.00	1351.2
19 81.00	9.02742E-03	12.193	0.29308	24433.	3455.8	418.06	1.3480
1.4000	4.81636E-03	1350.7	32.466	1.3769	10228.	570.00	1351.1
20 90.25	9.51487E-03	12.825	0.32540	25742.	3455.8	418.68	1.3443
1.4000	4.80927E-03	1347.9	34.199	1.4534	10175.	570.00	1348.3
21 100.00	9.99452E-03	13.432	0.35873	27024.	3455.8	419.56	1.3390
1.4000	4.79913E-03	1343.9	35.897	1.5299	10100.	570.00	1344.4

ITERATION NO.= 0 X-STATION NO.= 46 Y-INNER = 0.0001 Y-OUTER = 2.0852 OUTPUT NO. = 1

STREAMLINE	% / CP/CV	W1 / DENSITY	W2 / U	W3 / V	W4 / FLOW ANG(D)	P-STAT / P-STAG	TEMP(R) / T-STAG	MACH NO / VELOCITY
1	0.0	4.74815E-07	6.35935E-04	0.0	1.2829	3428.3	420.69	1.3321
	1.4000	4.74815E-03	1339.3	0.0	0.0	9925.9	570.00	1339.3
2	0.25	4.95443E-04	0.66344	8.85944E-04	1338.6	3428.3	420.74	1.3318
	1.4000	4.74756E-03	1339.1	1.7882	7.65113E-02	9921.5	570.00	1339.1
3	1.00	9.90041E-04	1.3251	3.53886E-03	2674.7	3428.3	420.90	1.3308
	1.4000	4.74578E-03	1338.4	3.5745	0.15302	9908.5	570.00	1338.4
4	2.25	1.48389E-03	1.9842	7.94911E-03	4008.2	3428.3	421.17	1.3293
	1.4000	4.74280E-03	1337.2	5.3569	0.22953	9886.8	570.00	1337.2
5	4.00	1.97663E-03	2.6398	1.41906E-02	5338.0	3428.3	421.54	1.3270
	1.4000	4.73864E-03	1335.5	7.1336	0.30604	9856.4	570.00	1335.5
6	6.25	2.47256E-03	3.3057	2.20717E-02	6675.6	3428.3	421.21	1.3290
	1.4000	4.74227E-03	1337.0	8.9267	0.38255	9882.9	570.00	1337.0
7	9.00	2.97521E-03	3.9932	3.19947E-02	8042.3	3428.3	420.05	1.3360
	1.4000	4.75543E-03	1342.2	10.754	0.45906	9979.2	570.00	1342.2
8	12.25	3.48372E-03	4.6995	4.39294E-02	9426.0	3428.3	418.51	1.3453
	1.4000	4.77286E-03	1349.0	12.610	0.53556	10108.	570.00	1349.1
9	16.00	3.99583E-03	5.4173	5.78724E-02	10827.	3428.3	417.00	1.3545
	1.4000	4.79025E-03	1355.7	14.483	0.61207	10237.	570.00	1355.8
10	20.25	4.50282E-03	6.1185	7.35338E-02	12201.	3428.3	416.29	1.3587
	1.4000	4.79831E-03	1358.8	16.331	0.68857	10298.	570.00	1358.9
11	25.00	5.00368E-03	6.8000	9.08059E-02	13558.	3428.3	416.24	1.3590
	1.4000	4.79889E-03	1359.0	18.148	0.76506	10302.	570.00	1359.1
12	30.25	5.50336E-03	7.4778	0.10984	14912.	3428.3	416.29	1.3587
	1.4000	4.79833E-03	1358.8	19.959	0.84156	10298.	570.00	1358.9
13	36.00	6.00116E-03	8.1496	0.13059	16259.	3428.3	416.46	1.3577
	1.4000	4.79639E-03	1356.0	21.761	0.91805	10283.	570.00	1358.2
14	42.25	6.50072E-03	8.8268	0.15323	17612.	3428.3	416.50	1.3575
	1.4000	4.79600E-03	1357.8	23.571	0.99454	10280.	570.00	1358.0
15	49.00	7.00313E-03	9.5131	0.17755	18974.	3428.3	416.35	1.3584
	1.4000	4.79763E-03	1358.4	25.396	1.0710	10293.	570.00	1358.6
16	56.25	7.50254E-03	10.190	0.20411	20327.	3428.3	416.40	1.3581
	1.4000	4.79714E-03	1358.2	27.205	1.1475	10289.	570.00	1358.5
17	64.00	7.55787E-03	10.853	0.23189	21666.	3428.3	416.65	1.3566
	1.4000	4.79425E-03	1357.0	28.994	1.2240	10267.	570.00	1357.4
18	72.25	8.06851E-03	11.503	0.26114	22990.	3428.3	417.08	1.3540
	1.4000	4.78429E-03	1355.1	30.762	1.3005	10230.	570.00	1355.4
19	81.00	8.55760E-03	12.177	0.29271	24340.	3428.3	417.11	1.3538
	1.4000	4.78895E-03	1354.9	32.568	1.3769	10228.	570.00	1355.3
20	90.25	9.47290E-03	12.809	0.32498	25644.	3428.3	417.72	1.3501
	1.4000	4.79190E-03	1352.1	34.307	1.4534	10175.	570.00	1352.6
21	100.00	9.95043E-03	13.415	0.35828	26922.	3428.3	418.61	1.3467
	1.4000	4.77181E-03	1348.2	36.006	1.5299	10100.	570.00	1348.7

ITERATION NO.= 0 X-STATION NO.= 47 Y-INNER = 0.0001 Y-OUTER = 2.0879 OUTPUT NO. = 1

STREAMLINE %	W1	W2	W3	W4	P-STAT	TEMP(R)	MACH NO
CP/CV	DENSITY	U	V	FLOW ANG(O)	P-STAG	T-STAG	VELOCITY
1 0.0	4.72146E-07	6.34364E-04	0.0	1.2765	3401.4	419.74	1.3379
1.4000	4.72146E-03	1343.6	0.0	0.0	9925.9	570.00	1343.6
2 0.25	4.93291E-04	0.56266	8.64892E-04	1333.6	3401.4	419.80	1.3375
1.4000	4.72287E-03	1343.3	1.7939	7.65110E-02	9921.6	570.00	1343.3
3 1.00	9.88741E-04	1.3235	3.53468E-03	2664.7	3401.4	419.95	1.3366
1.4000	4.71910E-03	1342.6	3.5858	0.15302	9908.5	570.00	1342.6
4 2.25	1.47745E-03	1.9819	7.93976E-03	3993.2	3401.4	420.22	1.3350
1.4000	4.71615E-03	1341.4	5.3740	0.22953	9886.8	570.00	1341.5
5 4.00	1.96824E-03	2.6367	1.40841E-02	5318.0	3401.4	420.59	1.3328
1.4000	4.71200E-03	1339.8	7.1564	0.30604	9856.4	570.00	1339.8
6 6.25	2.46187E-03	3.3018	2.20459E-02	6653.6	3401.4	420.26	1.3347
1.4000	4.71562E-03	1341.2	8.9551	0.38255	9882.9	570.00	1341.2
7 9.00	2.96229E-03	3.9884	3.19560E-02	8012.1	3401.4	419.10	1.3417
1.4000	4.72870E-03	1346.4	10.788	0.45906	9979.2	570.00	1346.4
8 12.25	3.46859E-03	4.6937	4.38743E-02	9390.7	3401.4	417.57	1.3510
1.4000	4.74603E-03	1353.2	12.649	0.53556	10108.	570.00	1353.3
9 16.00	3.97847E-03	5.4103	5.77975E-02	10781.	3401.4	416.06	1.3602
1.4000	4.76332E-03	1359.9	14.528	0.61206	10237.	570.00	1360.0
10 20.25	4.48327E-03	6.1105	7.34375E-02	12155.	3401.4	415.36	1.3644
1.4000	4.77134E-03	1362.9	16.380	0.68857	10298.	570.00	1363.0
11 25.00	4.98194E-03	6.7911	9.08865E-02	13507.	3401.4	415.31	1.3647
1.4000	4.77191E-03	1363.1	18.203	0.76506	10302.	570.00	1363.3
12 30.25	5.47946E-03	7.4680	0.10970	14856.	3401.4	415.35	1.3644
1.4000	4.77137E-03	1362.9	20.020	0.84156	10298.	570.00	1363.1
13 36.00	5.97513E-03	8.1390	0.13042	16198.	3401.4	415.52	1.3634
1.4000	4.76943E-03	1362.1	21.827	0.91805	10283.	570.00	1362.3
14 42.25	6.47249E-03	8.8153	0.15303	17546.	3401.4	415.56	1.3632
1.4000	4.76904E-03	1362.0	23.643	0.99456	10280.	570.00	1362.2
15 49.00	6.97272E-03	9.5007	0.17762	18903.	3401.4	415.42	1.3640
1.4000	4.77067E-03	1362.6	25.473	1.0710	10293.	570.00	1362.8
16 56.25	7.46996E-03	10.177	0.20364	20251.	3401.4	415.46	1.3638
1.4000	4.77017E-03	1362.3	27.288	1.1475	10289.	570.00	1362.6
17 64.00	7.96314E-03	10.839	0.23159	21584.	3401.4	415.71	1.3623
1.4000	4.76731E-03	1361.2	29.083	1.2240	10267.	570.00	1361.5
18 72.25	8.45204E-03	11.488	0.26080	22903.	3401.4	416.14	1.3597
1.4000	4.76237E-03	1359.2	30.837	1.3005	10230.	570.00	1359.6
19 81.00	8.94856E-03	12.162	0.29233	24248.	3401.4	416.17	1.3595
1.4000	4.76203E-03	1359.1	32.668	1.3769	10228.	570.00	1359.5
20 90.25	9.43176E-03	12.792	0.32457	25548.	3401.4	416.78	1.3558
1.4000	4.75502E-03	1356.3	34.412	1.4534	10175.	570.00	1356.7
21 100.00	9.90721E-03	13.398	0.35783	26821.	3401.4	417.66	1.3504
1.4000	4.74499E-03	1352.4	36.118	1.5299	10100.	570.00	1352.8

ITERATION NO.= 0 X-STATION NO.= 48 Y-INNER = 0.0001 Y-OUTER = 2.0996 OUTPUT NO. = 1

STREAMLINE %	W1	W2	W3	W4	P-STAT	TEMP(R)	MACH NO
CP/CV	DENSITY	U	V	FLOW ANG(D)	P-STAG	T-STAG	VELOCITY
1 0.0	4.69521E-07	6.32795E-04	0.0	1.2702	3374.9	418.81	1.3439
1.4000	4.69520E-03	1347.7	0.0	0.0	9925.9	570.00	1347.7
2 0.25	4.91176E-04	0.66147	8.63837E-04	1328.7	3374.9	418.86	1.3432
1.4000	4.69462E-03	1347.5	1.7994	7.65110E-02	9927.5	570.00	1347.5
3 1.00	9.81517E-04	1.3219	3.53949E-03	2654.9	3374.9	419.02	1.3422
1.4000	4.69286E-03	1346.8	3.5979	0.15302	9908.5	570.00	1346.8
4 2.25	1.47112E-03	1.9796	7.93041E-03	3978.5	3374.9	419.28	1.3406
1.4000	4.68992E-03	1345.6	5.3907	0.22953	9886.8	570.00	1345.6
5 4.00	1.95961E-03	2.6337	1.40677E-02	5298.3	3374.9	419.65	1.3384
1.4000	4.68580E-03	1344.0	7.1789	0.30604	9856.4	570.00	1344.0
6 6.25	2.45128E-03	3.2980	2.20199E-02	6629.1	3374.9	419.33	1.3404
1.4000	4.68940E-03	1345.4	8.9930	0.38255	9882.9	570.00	1345.4
7 9.00	2.94960E-03	3.9836	3.19174E-02	7982.5	3374.9	418.17	1.3474
1.4000	4.70240E-03	1350.6	10.821	0.45906	9979.2	570.00	1350.6
8 12.25	3.45373E-03	4.6878	4.38197E-02	9355.9	3374.9	416.64	1.3566
1.4000	4.71964E-03	1357.3	12.658	0.53556	10108.	570.00	1357.4
9 16.00	3.96143E-03	5.4033	5.77229E-02	10742.	3374.9	415.13	1.3658
1.4000	4.73583E-03	1364.0	14.571	0.61209	10237.	570.00	1364.0
10 20.25	4.46460E-03	6.1025	7.33413E-02	12110.	3374.9	414.45	1.3700
1.4000	4.74481E-03	1367.0	16.429	0.68857	10298.	570.00	1367.1
11 25.00	4.96349E-03	6.7822	9.05676E-02	13457.	3374.9	414.38	1.3703
1.4000	4.74538E-03	1367.2	18.257	0.76506	10302.	570.00	1367.3
12 30.25	5.45599E-03	7.4582	0.10955	14801.	3374.9	414.43	1.3700
1.4000	4.74403E-03	1367.0	20.080	0.84156	10298.	570.00	1367.1
13 36.00	5.94953E-03	8.1283	0.13025	16138.	3374.9	414.60	1.3690
1.4000	4.74291E-03	1366.2	21.893	0.91805	10283.	570.00	1366.4
14 42.25	6.44475E-03	8.8038	0.15283	17481.	3374.9	414.63	1.3688
1.4000	4.74252E-03	1366.0	23.714	0.99454	10280.	570.00	1366.2
15 49.00	6.94284E-03	9.4883	0.17738	18833.	3374.9	414.49	1.3696
1.4000	4.74414E-03	1366.6	25.549	1.0710	10293.	570.00	1366.9
16 56.25	7.43795E-03	10.163	0.20337	20176.	3374.9	414.53	1.3694
1.4000	4.74365E-03	1366.4	27.370	1.1475	10289.	570.00	1366.7
17 64.00	7.92992E-03	10.825	0.23129	21504.	3374.9	414.78	1.3679
1.4000	4.74079E-03	1365.3	29.170	1.2240	10267.	570.00	1365.6
18 72.25	8.41583E-03	11.474	0.26046	[illegible]	3374.9	415.21	1.3653
1.4000	4.73589E-03	1363.3	30.949	1.3005	10230.	570.00	1363.7
19 81.00	8.91022E-03	12.146	0.29195	24159.	3374.9	415.24	1.3651
1.4000	4.73556E-03	1363.2	32.766	1.3769	10228.	570.00	1363.6
20 90.25	9.39135E-03	12.776	0.32416	25453.	3374.9	415.85	1.3614
1.4000	4.72658E-03	1360.4	34.517	1.4534	10175.	570.00	1360.9
21 100.00	9.86477E-03	13.381	0.35738	26722.	3374.9	416.73	1.3561
1.4000	4.71861E-03	1356.5	36.226	1.5299	10100.	570.00	1357.0

ITERATION NO.= 0 X-STATION NO.= 49 Y-INNER = 0.0301 Y-OUTER = 2.0933 OUTPUT NO. = 1

	STREAMLINE % / CP/CV	W1 / DENSITY	W2 / U	W3 / V	W4 / FLOW ANG(D)	P-STAT / P-STAG	TEMP(R) / T-STAG	MACH NO / VELOCITY
1	0.0	4.66938E-07	6.31233E-04	0.0	1.2439	3349.0	417.89	1.3491
	1.4000	4.66938E-03	1351.9	0.0	0.0	9925.9	570.00	1351.9
2	0.25	4.89101E-04	0.64108	8.62786E-04	1323.9	3349.0	417.94	1.3488
	1.4000	4.66480E-03	1351.6	1.8049	7.65110E-02	9921.5	570.00	1351.6
3	1.00	5.77369E-04	1.3203	3.52630E-03	2645.2	3349.0	418.09	1.3478
	1.4000	4.66705E-03	1350.9	3.6080	0.15302	9938.5	570.00	1350.9
4	2.25	1.46495E-03	1.9773	7.92105E-03	3964.0	3349.0	418.36	1.3462
	1.4000	4.66413E-03	1349.7	5.4072	0.22953	9886.8	570.00	1349.8
5	4.00	1.95132E-03	2.6306	1.40512E-02	5279.0	3349.0	418.73	1.3440
	1.4000	4.66303E-03	1348.1	7.2009	0.30604	9856.4	570.00	1348.1
6	6.25	2.44392E-03	3.2941	2.19543E-02	6604.9	3349.0	418.40	1.3460
	1.4000	4.66360E-03	1349.5	9.0105	0.38295	9882.9	570.00	1349.6
7	9.00	2.93713E-03	3.9780	3.18788E-02	7953.4	3349.0	417.25	1.3530
	1.4000	4.67653E-03	1354.6	10.854	0.45906	9979.2	570.00	1354.7
8	12.25	3.43914E-03	4.6819	4.37649E-02	9321.8	3349.0	415.72	1.3622
	1.4000	4.69368E-03	1361.4	12.726	0.53556	10108.	570.00	1361.4
9	16.00	3.94468E-03	5.3963	5.76484E-02	10702.	3349.0	414.21	1.3713
	1.4000	4.71077E-03	1368.0	14.614	0.61207	10237.	570.00	1368.1
10	20.25	4.44520E-03	6.0945	7.32455E-02	12066.	3349.0	413.52	1.3755
	1.4000	4.71871E-03	1371.0	16.477	0.68857	10298.	570.00	1371.1
11	25.00	4.93964E-03	6.7733	9.04492E-02	13408.	3349.0	413.47	1.3758
	1.4000	4.71929E-03	1371.2	18.311	0.76506	10302.	570.00	1371.3
12	30.25	5.43292E-03	7.4485	0.10941	14747.	3349.0	413.52	1.3755
	1.4000	4.71873E-03	1371.0	20.139	0.84156	10298.	570.00	1371.1
13	36.00	5.92438E-03	8.1177	0.13008	16079.	3349.0	413.68	1.3745
	1.4000	4.71682E-03	1370.2	21.957	0.91805	10283.	570.00	1370.4
14	42.25	6.41757E-03	8.7923	0.15263	17417.	3349.0	413.72	1.3743
	1.4000	4.71644E-03	1370.0	23.784	0.99456	10280.	570.00	1370.3
15	49.00	6.91351E-03	9.4759	0.17715	18745.	3349.0	413.58	1.3752
	1.4000	4.71805E-03	1370.6	25.624	1.0710	10293.	570.00	1370.9
16	56.25	7.40552E-03	10.150	0.20331	20102.	3349.0	413.62	1.3749
	1.4000	4.71755E-03	1370.4	27.450	1.1475	10289.	570.00	1370.7
17	64.00	7.89551E-03	10.811	0.23099	21426.	3349.0	413.87	1.3734
	1.4000	4.71472E-03	1369.3	29.256	1.2240	10257.	570.00	1369.6
18	72.25	8.38026E-03	11.459	0.26013	22733.	3349.0	414.30	1.3708
	1.4000	4.70984E-03	1367.4	31.041	1.3005	10230.	570.00	1367.7
19	81.00	8.87257E-03	12.130	0.29158	24070.	3349.0	414.33	1.3706
	1.4000	4.70950E-03	1367.2	32.863	1.3769	10228.	570.00	1367.6
20	90.25	9.35167E-03	12.760	0.32375	25360.	3349.0	414.94	1.3669
	1.4000	4.70257E-03	1364.5	34.619	1.4534	10175.	570.00	1364.9
21	100.00	9.82309E-03	13.365	0.35694	26624.	3349.0	415.81	1.3616
	1.4000	4.69266E-03	1360.5	36.337	1.5299	10100.	570.00	1361.0

ITERATION NO.= 0 X-STATION NO.= 50 Y-INNER = 0.0001 Y-OUTER = 2.0960 OUTPUT NO. = 1

STREAMLINE	% / CP/CV	W1 / DENSITY	W2 / U	W3 / V	W4 / FLOW ANG(D)	P-STAT / P-STAG	TEMP(R) / T-STAG	MACH NO / VELOCITY
1	0.0	4.64395E-07	6.29674E-04	0.0	1.2578	3323.5	416.97	1.3546
	1.4000	4.64395E-03	1355.9	0.0	0.0	9925.9	570.00	1355.9
2	0.25	4.87059E-04	0.66029	8.81733E-04	1319.1	3323.5	417.03	1.3543
	1.4000	4.66337E-03	1355.7	1.8103	7.65110E-02	9921.5	570.00	1355.7
3	1.00	9.73289E-04	1.3198	3.52211E-03	2635.7	3323.5	417.18	1.3533
	1.4000	4.64163E-03	1355.0	3.6188	0.15302	9908.5	570.00	1355.0
4	2.25	1.45875E-03	1.9749	7.91172E-03	3949.8	3323.5	417.44	1.3518
	1.4000	4.63872E-03	1353.8	5.4235	0.22953	9886.8	570.00	1353.8
5	4.00	1.94319E-03	2.6275	1.40348E-02	5260.1	3323.5	417.81	1.3495
	1.4000	4.63465E-03	1352.2	7.2226	0.30604	9856.4	570.00	1332.2
6	6.25	2.43073E-03	3.2902	2.19691E-02	6581.1	3323.5	417.49	1.3515
	1.4000	4.63820E-03	1353.6	9.0176	0.38255	9882.9	570.00	1353.6
7	9.00	2.92487E-03	3.9740	3.18403E-02	7924.8	3323.5	416.34	1.3585
	1.4000	4.65106E-03	1358.7	10.886	0.45906	9979.2	570.00	1358.7
8	12.25	3.42478E-03	4.6761	4.37102E-02	9288.2	3323.5	414.82	1.3677
	1.4000	4.66811E-03	1365.4	12.763	0.53556	10128.	570.00	1365.4
9	16.00	3.92822E-03	5.3896	5.75742E-02	10664.	3323.5	413.31	1.3768
	1.4000	4.68512E-03	1372.0	14.657	0.61206	10237.	570.00	1372.0
10	20.25	4.42664E-03	6.0865	7.31497E-02	12022.	3323.5	412.62	1.3810
	1.4000	4.69301E-03	1375.0	16.525	0.68857	10298.	570.00	1375.1
11	25.00	4.91902E-03	6.7645	9.09309E-02	13360.	3323.5	412.57	1.3813
	1.4000	4.69357E-03	1375.2	18.364	0.76506	10302.	570.00	1375.3
12	30.25	5.41025E-03	7.4388	0.10927	14693.	3323.5	412.61	1.3810
	1.4000	4.69303E-03	1374.9	20.197	0.84156	10298.	570.00	1375.1
13	36.00	5.89966E-03	8.1072	0.12991	16021.	3323.5	412.78	1.3800
	1.4000	4.69113E-03	1374.2	22.020	0.91805	10283.	570.00	1374.4
14	42.25	6.39074E-03	8.7809	0.15243	17354.	3323.5	412.81	1.3798
	1.4000	4.69075E-03	1374.0	23.852	0.99454	10280.	570.00	1374.2
15	49.00	6.88466E-03	9.4635	0.17692	18697.	3323.5	412.67	1.3806
	1.4000	4.69235E-03	1374.6	25.698	1.0710	10293.	570.00	1374.8
16	56.25	7.37561E-03	10.137	0.20304	20030.	3323.5	412.72	1.3804
	1.4000	4.69186E-03	1374.4	27.529	1.1475	10289.	570.00	1374.6
17	64.00	7.86255E-03	10.797	0.23069	21349.	3323.5	412.97	1.3789
	1.4000	4.68903E-03	1373.2	29.340	1.2240	10267.	570.00	1373.5
18	72.25	8.34329E-03	11.444	0.25980	22653.	3323.5	413.39	1.3763
	1.4000	4.68418E-03	1371.3	31.131	1.3005	10230.	570.00	1371.7
19	81.00	8.83556E-03	12.119	0.29120	23984.	3323.5	413.42	1.3761
	1.4000	4.68388E-03	1371.2	32.958	1.3769	10228.	570.00	1371.5
20	90.25	9.31264E-03	12.744	0.37333	25269.	3323.5	414.03	1.3724
	1.4000	4.67696E-03	1368.6	34.720	1.4534	10175.	570.00	1368.9
21	100.00	9.78208E-03	13.348	0.35649	26328.	3323.5	414.91	1.3671
	1.4000	4.66709E-03	1364.5	36.444	1.5299	10100.	570.00	1365.0

ITERATION NO.= 0

DISCHARGE(CD),THRUST(VO),AND PRESSURE(PD) COEFFICIENTS

	WF	WF/WF*	WF/WFI	VO	VO/VD*	VO/VD-1	PD	THRUST(LBF)	
	2848.5	1.00000	1.00000	11046.	0.37072	0.37072	68956.	2.51333E 05	1
	2848.5	1.00000	1.00000	11461.	0.38467	0.38467	66278.	2.44227E 05	2
	2848.6	1.00000	1.00000	11907.	0.39963	0.39963	63619.	2.37271E 05	3
	2848.5	1.00000	1.00000	12386.	0.41569	0.41569	60981.	2.30489E 05	4
	2848.5	1.00000	1.00000	12907.	0.43303	0.43303	58352.	2.23853E 05	5
	2848.5	1.00000	1.00000	13462.	0.45182	0.45182	55772.	2.17391E 05	6
	2848.5	1.00000	1.00000	14070.	0.47220	0.47220	53123.	2.11091E 05	7
	2848.5	1.00000	1.00000	14735.	0.49454	0.49454	50505.	2.04959E 05	8
	2848.5	1.00000	1.00000	15468.	0.51915	0.51915	47878.	1.99004E 05	9
	2848.5	1.00000	1.00000	16281.	0.54642	0.54642	45230.	1.93243E 05	10
	2848.5	1.00000	1.00000	17197.	0.57715	0.57715	42536.	1.87656E 05	11
	2848.5	1.00000	1.00000	18241.	0.61220	0.61220	39779.	1.82275E 05	12
	2848.5	1.00000	1.00000	19465.	0.65330	0.65330	36902.	1.77083E 05	13
	2848.5	1.00000	1.00000	20958.	0.70338	0.70338	33822.	1.72094E 05	14
	2848.5	1.00000	1.00000	22921.	0.76928	0.76928	30335.	1.67308E 05	15
	2848.5	1.00000	1.00000	26350.	0.88435	0.88435	25385.	1.62528E 05	16
THROAT	2848.5	1.00000	1.00000	29796.	1.0000	1.0000	21732.	1.61877E 05	17
	2848.5	1.00000	1.00000	33248.	1.1159	1.1159	19618.	1.62943E 05	18
	2848.5	1.00000	1.00000	33554.	1.1261	1.1261	18361.	1.63098E 05	19
	2848.5	1.00000	1.00000	33835.	1.1356	1.1356	18129.	1.63250E 05	20
	2848.5	1.00000	1.00000	34095.	1.1443	1.1443	17917.	1.63400E 05	21
	2848.5	1.00000	1.00000	34339.	1.1525	1.1525	17720.	1.63548E 05	22
	2848.5	1.00000	1.00000	34570.	1.1602	1.1602	17536.	1.63695E 05	23
	2848.5	1.00000	1.00000	34789.	1.1676	1.1676	17363.	1.63840E 05	24
	2848.5	1.00000	1.00000	34997.	1.1746	1.1746	17200.	1.63983E 05	25
	2848.5	1.00000	1.00000	35197.	1.1813	1.1813	17046.	1.64125E 05	26
	2848.5	1.00000	1.00000	35388.	1.1877	1.1877	16899.	1.64265E 05	27
	2848.5	1.00000	1.00000	35573.	1.1939	1.1939	16759.	1.64404E 05	28
	2848.5	1.00000	1.00000	35751.	1.1999	1.1999	16624.	1.64542E 05	29
	2848.5	1.00000	1.00000	35923.	1.2057	1.2057	16496.	1.64678E 05	30
	2848.5	1.00000	1.00000	36090.	1.2113	1.2113	16372.	1.64813E 05	31
	2848.5	1.00000	1.00000	36252.	1.2167	1.2167	16252.	1.64947E 05	32
	2848.5	1.00000	1.00000	36410.	1.2220	1.2220	16137.	1.65080E 05	33
	2848.5	1.00000	1.00000	36563.	1.2271	1.2271	16025.	1.65217E 05	34
	2848.5	1.00000	1.00000	36713.	1.2322	1.2322	15917.	1.65343E 05	35
	2848.5	1.00000	1.00000	36859.	1.2371	1.2371	15813.	1.65472E 05	36
	2848.5	1.00000	1.00000	37002.	1.2419	1.2419	15711.	1.65601E 05	37
	2848.5	1.00000	1.00000	37141.	1.2465	1.2465	15612.	1.65729E 05	38
	2848.5	1.00000	1.00000	37277.	1.2511	1.2511	15516.	1.65856E 05	39
	2848.5	1.00000	1.00000	37411.	1.2556	1.2556	15423.	1.65982E 05	40
	2848.5	1.00000	1.00000	37542.	1.2600	1.2600	15331.	1.66107E 05	41
	2848.5	1.00000	1.00000	37670.	1.2643	1.2643	15243.	1.66230E 05	42
	2848.5	1.00000	1.00000	37796.	1.2685	1.2685	15156.	1.66354E 05	43
	2848.5	1.00000	1.00000	37920.	1.2727	1.2727	15071.	1.66476E 05	44
	2848.5	1.00000	1.00000	38042.	1.2767	1.2767	14988.	1.66598E 05	45
	2848.5	1.00000	1.00000	38161.	1.2808	1.2808	14907.	1.66719E 05	46
	2848.5	1.00000	1.00000	38278.	1.2847	1.2847	14828.	1.66838E 05	47
	2848.5	1.00000	1.00000	38394.	1.2886	1.2886	14751.	1.66957E 05	48
	2848.5	1.00000	1.00000	38507.	1.2924	1.2924	14675.	1.67076E 05	49
	2848.5	1.00000	1.00000	38619.	1.2961	1.2961	14600.	1.67193E 05	50

ITERATION NO.= 300   X-STATION NO.= 1   Y-INNER = 0.0001   Y-OUTER = 2.7142   OUTPUT NO. = 2

STREAMLINE #	CP/CV	W1 DENSITY	W2 U	W3 V	W4 FLOW ANG(D)	P-STAT P-STAG	TEMP(R) T-STAG	MACH NO VELOCITY
1	0.0	9.77285E-07	3.11994E-04	0.0	2.4044	9418.4	561.52	0.27484
	1.4000	9.77285E-03	319.25	0.0	0.0	9925.9	570.00	319.25
2	0.21	1.32704E-03	0.42207	-9.28544E-03	3264.8	9418.4	561.58	0.27386
	1.4000	9.77182E-03	318.05	-6.9971	-1.2603	9922.2	570.00	318.13
3	0.84	2.55227E-03	0.93405	-3.46983E-02	6524.3	9418.4	561.75	0.27093
	1.4000	9.76875E-03	314.47	-13.837	-2.5194	9911.3	570.00	314.77
4	1.87	3.97586E-03	1.2266	-6.09526E-02	9778.2	9418.4	562.04	0.26604
	1.4000	9.76370E-03	308.50	-20.361	-3.7760	9893.4	570.00	309.17
5	3.29	5.29707E-03	1.5901	-0.13992	13024.	9418.4	562.44	0.25921
	1.4000	9.75678E-03	300.18	-26.415	-5.0291	9868.9	570.00	301.34
6	5.05	6.61570E-03	1.9205	-0.21125	16261.	9418.4	562.90	0.25111
	1.4000	9.74982E-03	290.29	-31.932	-6.2773	9840.7	570.00	292.04
7	7.26	7.95646E-03	2.4959	-0.32398	19573.	9418.4	561.64	0.27281
	1.4000	9.77071E-03	314.19	-41.473	-7.5196	9918.3	570.00	316.92
8	10.11	9.30914E-03	3.1851	-0.49050	22927.	9418.4	560.03	0.29842
	1.4000	9.79888E-03	342.14	-52.690	-8.7548	10019.	570.00	346.18
9	13.74	1.06844E-02	4.0554	-0.71375	26358.	9418.4	557.64	0.33294
	1.4000	9.84086E-03	379.56	-65.803	-9.9818	10170.	570.00	385.40
10	18.20	1.23537E-02	4.8371	-0.95774	29768.	9418.4	556.07	0.35390
	1.4000	9.86858E-03	401.29	-79.456	-11.200	10270.	570.00	409.08
11	23.35	1.34042E-02	5.4444	-1.1978	33114.	9418.4	555.60	0.35994
	1.4000	9.87687E-03	406.17	-89.357	-12.407	10301.	570.00	415.88
12	29.06	1.47440E-02	5.9555	-1.4412	36423.	9418.4	555.62	0.35968
	1.4000	9.87651E-03	403.93	-97.751	-13.604	10299.	570.00	415.59
13	35.26	1.60777E-02	6.4094	-1.6921	39712.	9418.4	555.85	0.35676
	1.4000	9.87249E-03	398.65	-105.24	-14.789	10285.	570.00	412.31
14	41.93	1.74151E-02	6.8854	-1.9692	43013.	9418.4	555.92	0.35580
	1.4000	9.87117E-03	395.37	-113.08	-15.961	10280.	570.00	411.22
15	49.16	1.87614E-02	7.4259	-2.2872	46345.	9418.4	555.72	0.35841
	1.4000	9.87475E-03	395.81	-121.91	-17.119	10293.	570.00	414.16
16	56.77	2.00990E-02	7.8861	-2.6024	49647.	9418.4	555.79	0.35753
	1.4000	9.87355E-03	392.36	-129.48	-18.263	10288.	570.00	413.17
17	64.86	2.14240E-02	8.2350	-2.8987	52905.	9418.4	556.18	0.35250
	1.4000	9.86667E-03	384.38	-135.30	-19.392	10263.	570.00	407.50
18	73.25	2.27406E-02	8.5071	-3.1816	56136.	9418.4	556.72	0.34532
	1.4000	9.85702E-03	374.09	-139.91	-20.506	10228.	570.00	399.40
19	81.95	2.40766E-02	8.5272	-3.5352	59432.	9418.4	556.76	0.34479
	1.4000	9.85632E-03	370.78	-146.83	-21.604	10224.	570.00	398.80
20	90.98	2.53730E-02	9.0176	-3.7694	62595.	9418.4	557.65	0.33276
	1.4000	9.84063E-03	355.39	-148.55	-22.685	10169.	570.00	385.19
21	100.00	2.66573E-02	8.9775	-3.9501	65712.	9418.4	558.73	0.31755
	1.4000	9.82156E-03	336.78	-148.18	-23.749	10100.	570.00	367.93

ITERATION NO.= 300 X-STATION NO.= 2 Y-INNER = 0.0001 Y-OUTER = 2.6700 OUTPUT NO. = 2

STREAMLINE S / CP/CV	W1 / DENSITY	W2 / U	W3 / V	W4 / FLOW ANG(D)	P-STAT / P-STAG	TEMP(R) / T-STAG	MACH NO / VELOCITY
1 0.0	9.65795E-07	3.53210E-04	0.0	2.3805	9263.8	555.87	0.31560
1.4000	9.65795E-03	365.73	0.0	0.0	9925.9	570.00	365.73
2 0.30	1.25608E-03	0.56782	-8.01833E-03	3108.7	8923.5	552.99	0.39223
1.4000	9.40213E-03	452.06	-6.3836	-0.80904	9921.9	570.00	452.10
3 1.25	2.47362E-03	1.2139	-1.58663E-02	6134.9	8741.6	549.95	0.42695
1.4000	9.26137E-03	490.76	-6.4142	-0.74882	9908.8	570.00	490.80
4 2.69	3.68012E-03	1.8612	-3.46670E-02	9135.6	8652.2	548.71	0.44050
1.4000	9.18739E-03	505.71	-9.4195	-1.0671	9885.5	570.00	505.79
5 5.21	4.87553E-03	2.5010	-0.10889	12108.	8586.9	549.06	0.44743
1.4000	9.12585E-03	512.96	-22.334	-2.4931	9851.6	570.00	513.45
6 8.32	6.02001E-03	3.3398	-0.27925	14990.	8422.7	544.20	0.46684
1.4000	9.01774E-03	554.78	-46.386	-4.7795	9904.9	570.00	556.71
7 12.39	7.16390E-03	4.2792	-0.54779	17892.	8285.5	539.83	0.52077
1.4000	8.94295E-03	597.33	-76.465	-7.2948	10024.	570.00	602.21
8 17.46	8.37403E-03	5.2344	-0.87456	20961.	8251.8	536.57	0.55813
1.4000	8.96044E-03	625.07	-104.45	-9.4864	10196.	570.00	633.74
9 23.41	9.70351E-03	5.9335	-1.1727	24272.	8384.1	537.66	0.54837
1.4000	9.08557E-03	611.46	-120.85	-11.160	10286.	570.00	623.29
10 29.98	1.12047E-02	6.4071	-1.3756	27712.	8581.4	541.01	0.51763
1.4000	9.24194E-03	576.97	-124.14	-12.143	10302.	570.00	590.18
11 36.97	1.25762E-02	6.7046	-1.4910	31293.	8819.2	545.24	0.47655
1.4000	9.42006E-03	533.11	-115.38	-12.711	10298.	570.00	545.46
12 44.10	1.41574E-02	6.6793	-1.4357	35096.	9110.5	550.62	0.41953
1.4000	9.64045E-03	471.79	-101.41	-12.131	10283.	570.00	452.56
13 51.13	1.57521E-02	6.5077	-1.4884	38930.	9366.9	555.05	0.36697
1.4000	9.83258E-03	413.13	-94.427	-12.882	10290.	570.00	423.80
14 58.01	1.72953E-02	6.4110	-1.6749	42667.	9418.4	550.67	0.33307
1.4000	9.96535E-03	370.68	-96.844	-14.642	10170.	567.89	383.13
15 64.58	1.86951E-02	5.9290	-1.8015	46503.	9418.4	549.81	0.28716
1.4000	1.01097E-02	313.78	-95.342	-16.901	9973.3	551.76	327.95
16 70.37	2.05318E-02	4.9257	-1.7364	50404.	9418.4	535.22	0.22388
1.4000	1.02530E-02	219.50	-83.112	-19.108	9753.0	540.59	253.89
17 75.12	2.20372E-02	3.5697	-1.5244	54015.	9418.4	531.90	0.37143
1.4000	1.03170E-02	131.04	-69.175	-20.911	9613.6	535.03	193.81
18 79.72	2.33273E-02	4.6527	-1.8918	57307.	9418.4	533.69	0.19010
1.4000	1.02786E-02	199.45	-81.999	-22.127	9658.8	537.75	215.31
19 85.43	2.44456E-02	6.0608	-2.5496	60040.	9418.4	539.43	0.23645
1.4000	1.01729E-02	248.17	-104.30	-22.795	9792.2	545.47	269.20
20 92.35	2.55141E-02	6.5069	-2.9573	62716.	9418.4	545.56	0.25720
1.4000	1.00589E-02	270.71	-115.91	-23.379	9861.8	552.77	294.48
21 100.00	2.66336E-02	7.4574	-3.2813	65495.	9418.4	550.13	0.26607
1.4000	9.97517E-03	280.00	-123.20	-23.749	9893.4	557.92	305.91

ITERATION NO.= 300   X-STATION NO.= 3   Y-INNER = 0.0001   Y-OUTER = 2.6258   OUTPUT NO. = 2

	STREAMLINE %	W1	W2	W3	W4	P-STAT	TEMP(R)	MACH NO
	CP/CV	DENSITY	U	V	FLOW ANG(D)	P-STAG	T-STAG	VELOCITY
1	0.0	9.07328E-07	5.05508E-04	0.0	2.2473	8422.8	543.88	0.49006
	1.4000	9.02328E-03	560.23	0.0	0.0	9925.9	570.00	560.23
2	0.34	1.18557E-03	0.66203	-2.05028E-02	2952.5	8425.4	544.02	0.48866
	1.4000	9.02365E-03	558.43	-17.294	-1.7738	9919.8	570.00	558.69
3	1.35	2.36475E-03	1.3219	-6.81281E-02	5889.4	8404.4	543.92	0.48960
	1.4000	9.00276E-03	558.98	-28.810	-2.9504	9901.2	570.00	559.73
4	3.00	3.56533E-03	1.9259	-0.11153	8868.7	8477.7	545.76	0.47125
	1.4000	9.05065E-03	536.74	-31.287	-3.3236	9810.3	570.00	539.65
5	5.26	4.77149E-03	2.5170	-0.15813	11860.	8524.6	546.75	0.46114
	1.4000	9.08440E-03	527.51	-33.142	-3.5949	9862.5	570.00	528.55
6	8.29	3.89486E-03	3.4291	-0.27471	14704.	8347.1	541.65	0.51154
	1.4000	5.97888E-03	581.71	-46.601	-4.5802	9978.7	570.00	583.58
7	12.37	6.91765E-03	4.5804	-0.51544	27357.	8033.3	533.05	0.58875
	1.4000	8.78086E-03	662.13	-74.511	-6.4206	10157.	570.00	666.31
8	17.59	7.92179E-03	5.6634	-0.86097	19966.	7788.2	526.47	0.64293
	1.4000	8.61912E-03	714.91	-108.68	-8.6441	10284.	570.00	723.12
9	23.80	8.97703E-03	6.5324	-1.2372	22659.	7691.3	524.34	0.65981
	1.4000	8.54647E-03	727.68	-137.81	-10.724	10301.	570.00	740.61
10	30.83	1.01166E-02	7.2696	-1.5919	25574.	7713.6	524.96	0.65497
	1.4000	8.54129E-03	718.58	-137.36	-12.352	10289.	570.00	735.61
11	38.50	1.14726E-02	7.7869	-1.8596	28857.	7940.5	529.47	0.61868
	1.4000	8.73803E-03	678.74	-162.09	-13.432	10279.	570.00	697.83
12	46.50	1.31520E-02	7.9121	-1.9859	32889.	8406.4	537.98	0.54554
	1.4000	9.10635E-03	601.59	-151.00	-14.090	10294.	570.00	620.25
13	54.27	1.50678E-02	7.3499	-1.9673	37401.	9007.7	548.78	0.43974
	1.4000	9.56371E-03	487.79	-130.56	-14.985	10287.	575.90	504.96
14	61.03	1.70371E-02	5.9125	-1.7942	42037.	9418.4	549.11	0.31536
	1.4000	9.99362E-03	346.63	-105.19	-16.881	10051.	560.03	362.24
15	65.80	1.89642E-02	3.4587	-1.2362	46483.	9418.4	531.98	0.17192
	1.4000	1.03174E-02	182.38	-65.186	-19.668	9613.3	535.00	193.68
16	68.70	2.04839E-02	2.2246	-0.89988	50138.	9418.4	527.59	0.10405
	1.4000	1.04012E-02	108.60	-43.931	-22.024	9490.0	528.74	117.15
17	71.80	2.16621E-02	3.8678	-1.5861	53095.	9418.4	532.16	0.17066
	1.4000	1.03120E-02	178.55	-73.220	-22.297	9611.8	533.26	192.98
18	76.85	2.26392E-02	6.0472	-2.4199	55637.	9415.4	541.01	0.23234
	1.4000	1.01433E-02	267.11	-106.89	-21.810	9844.9	547.90	287.70
19	83.87	2.35735E-02	7.7350	-3.0882	58075.	9418.4	550.13	0.30730
	1.4000	9.97512E-03	328.12	-131.00	-21.764	10058.	560.32	333.31
20	91.99	2.47021E-02	8.2006	-3.3724	60869.	9418.4	554.16	0.31108
	1.4000	9.90259E-03	331.98	-136.56	-22.360	10072.	564.89	358.97
21	100.00	2.61427E-02	7.5194	-3.3085	64307.	9418.4	551.18	0.27306
	1.4000	9.95610E-03	287.63	-126.56	-23.749	9919.2	559.40	314.24

ITERATION NO.= 300 X-STATION NO.= 4 Y-INNER = 0.0001 Y-OUTER = 2.5817 OUTPUT NO. = 2

STREAMLINE %		W1	W2	W3	W4	P-STAT	TEMP(R)	MACH NO
	CP/CV	DENSITY	U	V	FLOW ANG(D)	P-STAG	T-STAG	VELOCITY
1	0.0	9.21883E-07	4.67876E-04	0.0	2.2886	8679.5	545.56	0.44206
	1.4000	9.21883E-03	507.52	0.0	0.0	9925.9	570.00	507.52
2	0.25	1.21735E-03	0.54114	-2.39094E-02	3011.8	8952.8	553.52	0.38582
	1.4000	9.42395E-03	444.51	-19.660	-2.5299	9920.9	570.00	444.95
3	0.94	2.46482E-03	0.98422	-7.33044E-02	6084.7	9118.2	556.65	0.34622
	1.4000	9.56397E-03	399.31	-29.740	-4.2595	9906.5	570.00	400.41
4	1.98	3.74376E-03	1.2936	-0.11091	9220.5	9289.4	559.99	0.29896
	1.4000	9.65530E-03	345.52	-29.626	-4.9007	9883.7	570.00	346.79
5	3.16	5.07862E-03	1.2935	-0.10994	12468.	9418.4	559.01	0.22075
	1.4000	9.83428E-03	254.69	-21.647	-4.8581	9743.6	563.45	255.61
6	4.39	6.45365E-03	1.4276	-0.12532	15707.	9418.4	553.16	0.19411
	1.4000	9.92045E-03	222.94	-19.571	-5.0169	9669.2	557.38	223.79
7	6.07	7.65656E-03	2.2609	-0.25350	18522.	9418.4	555.16	0.25727
	1.4000	9.88479E-03	295.29	-33.109	-6.3975	9862.[illegible]	562.51	297.14
8	8.70	8.83707E-03	3.5043	-0.54721	21816.	93[illegible]	556.59	0.34705
	1.4000	9.77921E-03	396.55	-61.922	-8.8752	1019[illegible]	570.00	401.35
9	12.53	9.84763E-03	4.9150	-1.0037	24450.	8975.0	549.40	0.44376
	1.4000	9.53545E-03	499.10	-101.92	-11.542	10274.	570.00	509.40
10	17.55	1.07661E-02	6.1079	-1.5027	26856.	8613.6	541.59	0.51215
	1.4000	9.26658E-03	567.33	-139.58	-13.822	10302.	570.00	584.25
11	23.45	1.18724E-02	6.8562	-1.9159	29647.	8525.0	540.07	0.52630
	1.4000	9.19703E-03	577.49	-161.37	-15.612	10296.	570.00	599.61
12	29.81	1.32751E-02	7.1050	-2.1577	33061.	8728.0	543.96	0.48926
	1.4000	9.34882E-03	535.21	-162.54	-16.893	10280.	570.00	559.35
13	36.24	1.46357E-02	7.0671	-2.2852	36815.	9026.4	549.14	0.43564
	1.4000	9.57724E-03	476.36	-154.04	-17.919	10285.	570.00	500.64
14	42.66	1.63684E-02	7.0026	-2.4003	40511.	9257.2	552.98	0.39234
	1.4000	9.75393E-03	427.81	-146.64	-18.920	10294.	570.00	452.29
15	49.21	1.75754E-02	7.3729	-2.6227	43724.	9294.3	553.68	0.38384
	1.4000	9.78344E-03	417.13	-148.38	-19.561	10289.	570.00	442.73
16	56.40	1.86804E-02	8.4338	-2.9733	46295.	9122.2	550.92	0.41607
	1.4000	9.64748E-03	451.48	-159.17	-19.420	10276.	570.00	478.72
17	64.52	1.96756E-02	9.3825	-3.2410	48836.	8973.2	549.81	0.43934
	1.4000	9.52636E-03	476.86	-164.72	-19.056	10245.	570.00	504.51
18	73.33	2.08385E-02	9.9835	-3.5065	51733.	8940.1	549.54	0.44429
	1.4000	9.49603E-03	479.09	-168.27	-19.353	10225.	570.00	507.78
19	82.54	2.21819E-02	10.252	-3.8168	55022.	9007.7	549.76	0.42909
	1.4000	9.54660E-03	462.18	-172.07	-20.421	10223.	570.00	493.17
20	91.64	2.36834E-02	9.7377	-3.9373	58589.	9175.4	553.63	0.38452
	1.4000	9.65039E-03	411.16	-166.25	-22.015	10161.	570.00	443.50
21	100.00	2.53309E-02	6.6154	-3.7908	62452.	9429.2	558.51	0.32076
	1.4000	9.81170E-03	340.12	-149.65	-23.749	10100.	570.00	371.58

ITERATION NO. = 300 X-STATION NO. = 5 Y-INNER = 0.0001 Y-OUTER = 2.5375 OUTPUT NO. = 2

STREAMLINE	%	W1	W2	W3	W4	P-STAT	TEMP(R)	MACH NO
	CP/CV	DENSITY	U	V	FLOW ANG(D)	P-STAG	T-STAG	VELOCITY
1	0.0	4.59847E-07	3.72154E-04	0.0	2.3681	9184.0	557.49	0.33500
	1.4000	9.53847E-03	387.72	0.0	0.0	9925.9	570.00	387.72
2	0.19	1.24215E-03	0.38840	-2.14698E-02	3055.4	9419.4	560.93	0.28974
	1.4000	9.78302E-03	312.68	-17.284	-3.1640	9906.9	569.10	313.16
3	0.70	2.50483E-03	0.66684	-6.15960E-02	6151.8	9418.4	556.12	0.23197
	1.4000	9.86762E-03	267.02	-24.591	-5.2618	9778.0	562.11	268.15
4	1.46	3.77174E-03	0.89354	-0.10624	9255.3	9418.4	553.91	0.20680
	1.4000	9.90712E-03	236.91	-28.167	-6.7835	9703.4	558.64	238.57
5	2.31	5.07215E-03	0.86200	-0.11562	12426.	9418.4	549.16	0.14927
	1.4000	9.95282E-03	165.95	-22.795	-7.8398	9566.1	551.60	171.47
6	3.09	6.36845E-03	0.73885	-0.10293	15588.	9418.4	546.70	0.10220
	1.4000	1.00377E-02	116.02	-16.162	-7.9308	9487.5	547.84	117.14
7	3.88	7.63150E-03	0.86217	-0.14912	18680.	9418.4	547.45	0.10214
	1.4000	1.00240E-02	115.60	-19.016	-9.3418	9487.4	549.59	117.15
8	4.80	8.98564E-03	1.0214	-0.20223	21757.	9418.4	548.33	0.10205
	1.4000	1.00078E-02	114.91	-22.751	-11.199	9497.2	549.48	117.14
9	5.86	1.02188E-02	1.1689	-0.25799	25912.	9418.4	545.10	0.10235
	1.4000	1.00672E-02	114.38	-25.248	-12.446	9457.6	546.24	117.14
10	7.07	1.16407E-02	1.3185	-0.34767	28493.	9418.4	539.32	0.10299
	1.4000	1.01939E-02	113.27	-29.867	-14.772	9488.5	539.46	117.14
11	10.08	1.24687E-02	4.8804	-1.4838	30793.	9378.9	556.07	0.35392
	1.4000	9.82718E-03	391.42	-119.00	-16.911	10227.	570.00	409.11
12	15.55	1.33834E-02	6.3785	-2.0641	33212.	9037.4	549.11	0.43610
	1.4000	9.58926E-03	476.59	-154.23	-17.932	10299.	570.00	500.93
13	22.20	1.44123E-02	7.3222	-2.3778	35836.	8874.6	546.25	0.46626
	1.4000	9.46595E-03	508.36	-164.99	-17.991	10300.	570.00	514.17
14	29.76	1.54111E-02	8.2542	-2.6178	38388.	8719.1	543.72	0.49159
	1.4000	9.14339E-03	535.60	-169.87	-17.597	10285.	570.00	561.89
15	38.31	1.63023E-02	9.3567	-2.9964	40712.	8505.0	539.93	0.52765
	1.4000	9.17778E-03	573.95	-178.28	-17.256	10281.	570.00	601.00
16	47.91	1.72077E-02	10.425	-3.2586	43076.	8325.0	536.46	0.55908
	1.4000	9.04173E-03	605.85	-189.37	-17.358	10293.	570.00	634.75
17	58.32	1.83706E-02	11.017	-3.5911	45974.	8338.7	536.89	0.55532
	1.4000	9.04949E-03	599.88	-195.48	-18.055	10282.	570.00	630.74
18	69.01	1.96124E-02	11.015	-3.6465	49437.	8531.2	541.14	0.51642
	1.4000	9.18564E-03	555.95	-194.15	-19.250	10233.	570.00	588.87
19	79.67	2.13472E-02	10.930	-4.1511	53124.	8743.9	545.03	0.47858
	1.4000	9.34739E-03	512.00	-194.46	-20.797	10228.	570.00	547.68
20	90.08	2.28565E-02	10.513	-4.3510	56710.	8940.1	549.38	0.43325
	1.4000	9.48156E-03	459.94	-190.36	-22.484	10171.	570.00	497.77
21	100.00	2.43380E-02	9.9318	-4.3700	60215.	9110.8	553.46	0.38661
	1.4000	9.59132E-03	408.08	-179.58	-23.749	10100.	570.00	445.84

ITERATION NO.= 300   X-STATION NO.= 6   Y-INNER = 0.0001   Y-OUTER = 2.4933   OUTPUT NO. = 2

STREAMLINE %	W1	W2	W3	W4	P-STAT	TEMP(R)	MACH NO
CP/CV	DENSITY	U	V	FLOW ANG(D)	P-STAG	T-STAG	VELOCITY
1 0.0	9.63007E-07	3.62272E-04	0.0	2.3747	9226.3	558.22	0.32482
1.4000	9.83907E-03	376.19	0.0	0.0	9925.9	570.00	376.19
2 0.20	1.20194E-03	0.44838	-1.98895E-02	2963.6	9233.0	558.39	0.32237
1.4000	9.63404E-03	373.05	-16.548	-2.5399	9922.3	570.00	373.41
3 0.82	2.39408E-03	0.94379	-7.21860E-02	5884.5	9135.8	556.88	0.34323
1.4009	9.55848E-03	395.87	-30.278	-4.3737	9911.5	570.00	397.03
4 1.91	3.52791E-03	1.5234	-0.16339	8723.6	8972.1	554.30	0.37632
1.4000	9.43095E-03	431.82	-46.314	-6.1217	9893.4	570.00	434.30
5 3.56	4.63499E-03	2.1568	-0.30680	11482.	8798.4	551.61	0.40825
1.4000	9.29340E-03	465.33	-66.127	-8.0860	9868.3	570.00	470.00
6 5.68	5.78132E-03	2.6666	-0.45353	14320.	8782.5	551.78	0.40634
1.4000	9.27385E-03	461.25	-78.448	-9.6523	9840.1	570.00	467.88
7 8.22	7.03267E-03	3.0809	-0.57502	17399.	8930.3	553.47	0.38644
1.4000	9.40112E-03	438.08	-81.765	-10.572	9899.2	570.00	445.85
8 11.00	8.39043E-03	3.1898	-0.65974	20701.	9198.4	557.46	0.33544
1.4000	9.61412E-03	380.17	-78.630	-11.686	9943.5	570.00	388.22
9 13.69	9.84146E-03	2.8901	-0.62719	24196.	9418.4	556.14	0.25995
1.4000	9.86732E-03	293.66	-63.726	-12.244	9871.5	563.68	300.50
10 16.20	1.12417E-02	2.7666	-0.64497	27597.	9418.4	547.72	0.22027
1.4000	1.00190E-02	246.10	-57.373	-13.123	9742.2	553.04	252.70
11 19.46	1.22582E-02	4.5865	-1.2217	30243.	9408.5	557.52	0.33454
1.4000	9.83254E-03	374.15	-99.664	-14.916	10168.	570.00	387.20
12 24.31	1.30990E-02	6.3753	-1.8522	32517.	8994.0	548.62	0.44143
1.4000	9.55187E-03	486.70	-141.40	-16.200	10282.	570.00	506.83
13 30.49	1.39771E-02	7.5786	-2.2546	34823.	8712.9	543.38	0.49509
1.4000	9.34284E-03	542.22	-161.30	-16.567	10302.	570.00	565.70
14 37.62	1.49338E-02	8.5073	-2.5273	37277.	8549.6	540.60	0.52141
1.4000	9.21455E-03	569.67	-169.23	-16.545	10290.	570.00	594.27
15 45.51	1.59595E-02	9.2986	-2.7966	39876.	8462.0	539.19	0.53453
1.4000	9.14405E-03	582.64	-175.23	-16.739	10279.	570.00	608.42
16 54.05	1.70868E-02	9.9938	-3.1521	42707.	8448.3	538.71	0.51890
1.4000	9.13735E-03	584.71	-184.47	-17.510	10294.	570.00	613.12
17 63.06	1.81615E-02	10.247	-3.5224	45637.	8539.5	540.51	0.52233
1.4000	9.20534E-03	563.50	-191.83	-18.900	10285.	570.00	595.28
18 72.21	1.97474E-02	10.311	-3.4050	49171.	8703.3	544.22	0.48671
1.4000	9.31789E-03	522.15	-192.68	-20.255	10234.	570.00	556.57
19 81.40	2.11212E-02	10.428	-4.1404	52508.	8828.7	546.52	0.46350
1.4000	9.41238E-03	493.64	-196.03	-21.659	10229.	570.00	531.14
20 90.65	2.23971E-02	10.447	-4.4076	55598.	8904.3	548.67	0.44090
1.4000	9.45576E-03	466.42	-196.79	-22.876	10178.	570.00	506.23
21 100.00	2.34896E-02	10.669	-4.6943	56275.	8885.2	549.50	0.43184
1.4000	9.42108E-03	454.20	-199.85	-23.749	10100.	570.00	496.22

ITERATION NO.= 300 X-STATION NO.= 7 Y-INNER = 0.0001 Y-OUTER = 2.4492 OUTPUT NO. = 2

STREAMLINE % / CP/CV	W1 / DENSITY	W2 / U	W3 / V	W4 / FLOW ANG(D)	P-STAT / P-STAG	TEMP(R) / T-STAG	MACH NO / VELOCITY
1 0.0	9.51036E-07	3.97836E-04	0.0	2.3498	9066.2	555.43	0.36210
1.4000	9.51036E-03	418.32	0.0	0.0	9925.9	570.00	418.32
2 0.22	1.15938E-03	0.50529	-1.31047E-02	2864.6	8989.6	554.15	0.37815
1.4000	9.43191E-03	436.20	-11.313	-1.4856	9922.1	570.00	436.35
3 0.92	2.29720E-03	1.0480	-5.53352E-02	5686.8	8892.9	552.63	0.39647
1.4000	9.37596E-03	456.22	-24.088	-3.0223	9910.4	570.00	456.86
4 2.11	3.41048E-03	1.6312	-0.13172	8453.3	8774.3	550.83	0.41710
1.4000	9.29111E-03	478.30	-38.622	-4.6165	9890.1	570.00	479.86
5 3.85	4.47040E-03	2.2963	-0.25840	11104.	8576.4	547.76	0.45057
1.4000	9.12476E-03	513.67	-57.803	-6.4204	9860.5	570.00	516.91
6 6.24	5.47849E-03	3.0810	-0.45938	13652.	8338.9	543.09	0.49774
1.4000	8.94631E-03	562.38	-83.852	-8.4805	9876.9	570.00	568.59
7 9.37	6.49298E-03	3.9506	-0.71633	16235.	8161.6	538.17	0.54378
1.4000	8.83603E-03	608.45	-110.32	-10.277	9979.5	570.00	618.37
8 13.26	7.56025E-03	4.7940	-0.95390	18929.	8125.1	535.40	0.56845
1.4000	8.84217E-03	632.43	-125.44	-11.219	10116.	570.00	644.75
9 17.80	8.85594E-03	5.4209	-1.1216	22154.	8338.3	537.48	0.55005
1.4000	9.03907E-03	612.12	-126.65	-11.690	10242.	570.00	625.09
10 22.73	1.03034E-02	5.6685	-1.2584	25667.	8720.9	542.56	0.49314
1.4000	9.34804E-03	550.19	-122.14	-12.516	10298.	570.00	563.58
11 27.83	1.16952E-02	5.8198	-1.4319	29042.	8584.3	548.14	0.44653
1.4000	9.54987E-03	497.62	-122.44	-13.823	10302.	570.00	512.46
12 33.22	1.28904E-02	6.3007	-1.6953	31998.	9011.0	548.67	0.44084
1.4000	9.56894E-03	488.79	-131.52	-15.060	10298.	570.00	506.17
13 39.11	1.39870E-02	6.9429	-1.9830	34741.	8948.9	547.82	0.44995
1.4000	9.51783E-03	496.38	-141.78	-15.940	10283.	570.00	516.23
14 45.57	1.51918E-02	7.5911	-2.2639	37528.	8907.2	547.10	0.45749
1.4000	9.48597E-03	502.66	-149.91	-16.606	10282.	570.00	524.56
15 52.56	1.62887E-02	8.1392	-2.5507	40476.	8922.3	547.18	0.45668
1.4000	9.50070E-03	499.68	-156.59	-17.400	10294.	570.00	523.65
16 59.94	1.75469E-02	8.4534	-2.8336	43562.	8992.7	548.51	0.44259
1.4000	9.55233E-03	481.76	-161.48	-18.531	10287.	570.00	508.11
17 67.51	1.88245E-02	8.5838	-3.1022	46672.	9076.2	550.43	0.42160
1.4000	9.60736E-03	453.99	-164.80	-19.870	10246.	570.00	484.86
18 75.22	2.00657E-02	8.7546	-3.3808	49702.	9126.1	551.79	0.40618
1.4000	9.63848E-03	436.30	-168.49	-21.115	10226.	570.00	467.70
19 83.18	2.12615E-02	9.1580	-3.7299	52657.	9138.1	552.00	0.40393
1.4000	9.64552E-03	430.73	-175.43	-22.160	10224.	570.00	465.08
20 91.45	2.23679E-02	9.4366	-4.0096	55377.	9116.1	557.51	0.39783
1.4000	9.61334E-03	421.89	-179.26	-23.021	10167.	570.00	458.39
21 100.00	2.33372E-02	9.6002	-4.3121	57923.	9059.9	552.57	0.39714
1.4000	9.55300E-03	418.86	-184.30	-23.749	10100.	570.00	457.61

ITERATION NO.= 300 X-STATION NO.= 8 Y-INNER = 0.0001 Y-OUTER = 2.4050 OUTPUT NO. = 2

STREAMLINE	STREAMLINE % / CP/CV	W1 / DENSITY	W2 / U	W3 / V	W4 / FLOW ANG(D)	P-STAT / P-STAG	TEMP(R) / T-STAG	MACH NO / VELOCITY
1	0.0	9.35284E-07	4.36101E-04	0.0	2.3168	8856.7	551.74	0.40682
	1.4000	9.35289E-03	468.41	0.0	0.0	9925.9	570.00	468.41
2	0.24	1.12286E-03	0.53216	-1.17144E-02	2782.3	8828.3	551.29	0.41188
	1.4000	9.33033E-03	473.94	-10.433	-1.2610	9921.8	570.00	474.05
3	0.95	2.24147E-03	1.0629	-4.93643E-02	5554.2	8814.4	551.24	0.41248
	1.4000	9.31657E-03	474.21	-22.023	-2.6590	9909.6	570.00	474.72
4	2.14	3.35549E-03	1.5668	-0.11360	8314.4	8798.7	551.29	0.41194
	1.4000	9.29922E-03	472.91	-33.856	-4.0948	9889.0	570.00	474.12
5	3.80	4.44944E-03	2.1298	-0.20862	11029.	8742.5	550.75	0.41909
	1.4000	9.24886E-03	478.66	-46.887	-5.5945	9859.7	570.00	480.95
6	6.01	5.50059E-03	2.8086	-0.36231	13661.	8602.5	547.94	0.44869
	1.4000	9.14745E-03	510.61	-68.867	-7.3504	9877.1	570.00	514.84
7	8.91	6.52229E-03	3.6637	-0.58944	16253.	8424.8	543.06	0.49806
	1.4000	9.03903E-03	561.72	-90.373	-9.1398	9980.8	570.00	568.94
8	12.60	7.55665E-03	4.5772	-0.86374	18892.	8294.5	538.37	0.54196
	1.4000	5.97662E-03	605.72	-114.30	-10.686	10129.	570.00	616.41
9	17.04	8.69771E-03	5.3365	-1.1350	21761.	8336.3	537.25	0.55209
	1.4000	9.04072E-03	613.55	-130.49	-12.007	10255.	570.00	627.28
10	22.02	9.96749E-03	5.8004	-1.3453	24886.	8540.1	540.30	0.52429
	1.4000	9.20951E-03	581.93	-134.97	-13.058	10299.	570.00	597.38
11	27.34	1.12799E-02	6.0899	-1.5086	28086.	8761.8	544.25	0.48638
	1.4000	9.37996E-03	535.89	-133.74	-13.914	10301.	570.00	556.21
12	32.96	1.23093E-02	6.4640	-1.7062	31135.	8865.6	546.23	0.46649
	1.4000	9.45674E-03	516.74	-136.39	-14.786	10291.	570.00	534.43
13	38.95	1.36760E-02	6.9219	-1.9453	33993.	8898.7	547.00	0.45851
	1.4000	9.47862E-03	506.06	-142.22	-15.698	10279.	570.00	525.66
14	45.39	1.48376E-02	7.4504	-2.2266	36971.	8912.8	547.14	0.45707
	1.4000	9.49128E-03	502.13	-150.06	-16.639	10286.	570.00	524.07
15	52.26	1.60323E-02	7.9027	-2.5190	39823.	8952.0	547.72	0.45098
	1.4000	9.52287E-03	492.93	-157.13	-17.680	10293.	570.00	517.37
16	59.49	1.72479E-02	8.2471	-2.8087	42812.	9008.0	548.76	0.43989
	1.4000	9.54214E-03	478.15	-162.85	-18.807	10286.	570.00	505.12
17	66.98	1.84396E-02	8.4980	-3.0771	45731.	9046.9	550.00	0.42636
	1.4000	9.58387E-03	460.86	-165.87	-19.905	10251.	570.00	490.14
18	74.75	1.95950E-02	8.6605	-3.3820	48556.	9051.6	550.48	0.42105
	1.4000	9.58048E-03	452.41	-172.68	-20.891	10225.	570.00	484.25
19	82.91	2.07174E-02	9.3554	-3.7460	51369.	9040.1	550.31	0.42301
	1.4000	9.57141E-03	451.57	-180.81	-21.822	10224.	570.00	486.43
20	91.38	2.18307E-02	9.5717	-4.0132	54097.	9039.0	551.19	0.41312
	1.4000	9.55493E-03	436.45	-183.83	-22.747	10166.	570.00	475.43
21	100.00	2.29469E-02	9.6857	-4.2617	56819.	9044.4	552.30	0.40030
	1.4000	9.54133E-03	422.09	-185.72	-23.749	10109.	570.00	461.15

ITERATION NO.= 300   X-STATION NO.= 9   Y-INNER = C.0001   Y-OUTER = 2.3608   OUTPUT NO. = 2

STREAMLINE % / CP/CV		W1 / DENSITY	W2 / U	W3 / V	W4 / FLOW ANG(D)	P-STAT / P-STAG	TEMP(R) / T-STAG	MACH NO / VELOCITY
1	0.0	9.24107E-07	4.63182E-04	0.0	2.2933	8708.8	549.09	0.43636
	1.4000	9.24107E-03	501.22	0.0	0.0	9925.9	570.00	501.22
2	0.24	1.C9071E-03	0.54793	-1.239C9E-02	2706.9	8699.3	548.98	C.43751
	1.4000	9.23276E-03	502.34	-11.349	-1.2955	9921.8	570.00	502.49
3	0.95	2.18191E-03	1.C843	-4.99807E-02	5413.5	8711.5	549.40	0.43300
	1.4000	9.23873E-03	496.97	-22.907	-2.6391	99C9.4	570.00	497.50
4	2.12	3.27635E-03	1.5974	-0.11183	8124.9	8733.4	550.12	C.42511
	1.4000	9.24987E-03	487.56	-34.133	-4.0045	9889.0	570.00	488.76
5	3.73	4.37434E-03	2.C776	-0.19638	10841.	8760.7	551.06	0.41458
	1.40C0	9.26295E-03	474.94	-44.893	-5.3997	9860.8	570.00	477.06
6	5.76	5.47328E-03	2.5889	-0.31430	13564.	8770.4	551.10	0.41406
	1.4000	9.27243E-03	473.01	-57.425	-6.9221	9868.9	570.00	476.48
7	8.32	6.56091E-03	3.2741	-0.49419	14285.	8724.6	548.80	C.43950
	1.4000	9.26277E-03	499.04	-75.324	-8.5833	9962.3	570.00	504.69
8	11.53	7.63755E-03	4.0784	-0.73691	19001.	8653.2	545.49	C.47397
	1.4000	9.24261E-03	533.99	-96.465	-10.242	10092.	570.00	542.64
9	15.46	8.72158E-03	4.9327	-1.0197	21747.	8595.1	542.24	0.50595
	1.4000	9.23557E-03	555.55	-116.91	-11.660	10236.	570.00	577.51
10	20.07	9.83154E-C3	5.6245	-1.2718	24528.	8598.3	541.36	0.51426
	1.4000	9.25396E-03	572.09	-129.36	-12.741	10298.	570.00	586.53
11	25.22	1.09578E-C2	6.1825	-1.4892	27327.	8634.6	541.97	0.5C856
	1.4000	9.28276E-03	564.21	-135.90	-13.543	10302.	570.00	580.35
12	30.85	1.20823E-02	6.7138	-1.7143	30118.	8665.7	542.62	C.50225
	1.4000	9.33491E-03	555.67	-141.89	-14.324	10295.	570.00	573.50
13	36.93	1.32008E-02	7.2216	-1.9607	32892.	8689.1	543.25	0.49615
	1.4000	9.31921E-03	547.06	-148.53	-15.190	10281.	570.00	566.86
14	43.47	1.43215E-02	7.7602	-2.2476	35678.	8705.8	543.51	0.49364
	1.4000	9.33268E-03	541.86	-156.94	-16.152	10283.	570.00	564.13
15	50.48	1.54498E-02	8.3012	-2.5670	38484.	8723.5	543.67	0.49206
	1.4000	9.34886E-03	537.30	-156.15	-17.183	10294.	570.00	562.41
16	57.94	1.45735E-02	8.7852	-2.8921	41272.	8740.6	544.C8	C.48808
	1.4000	9.36027E-03	530.C8	-174.50	-18.221	10287.	570.00	558.06
17	65.78	1.70343E-02	9.1879	-3.2051	44016.	8758.2	544.80	0.48093
	1.40C0	9.36343E-03	519.55	-161.24	-19.231	10257.	570.00	550.26
18	73.96	1.88303E-02	9.5562	-3.5253	46769.	8772.6	545.56	0.47329
	1.4000	9.36877E-03	508.41	-187.52	-20.245	10227.	570.00	541.88
19	82.49	1.95419E-02	9.5752	-3.8973	49594.	8795.2	545.99	C.46886
	1.4000	9.38562E-03	500.21	-195.43	-21.340	10225.	570.00	537.03
20	91.24	2.10995E-02	10.075	-4.1775	52409.	8844.4	547.76	0.45059
	1.4000	9.40789E-03	477.51	-197.99	-22.520	1C166.	570.00	516.93
21	100.00	2.22937E-02	9.9970	-4.3987	55289.	8914.5	550.02	0.42615
	1.4000	9.44329E-03	448.42	-197.31	-23.749	10100.	570.00	489.91

ITERATION NO.= 300 X-STATION NO.= 10 Y-INNER = 0.0001 Y-OUTER = 2.3167 OUTPUT NO. = 2

STREAMLINE #	CP/CV	W1 DENSITY	W2 U	W3 V	W4 FLOW ANG(D)	P-STAT P-STAG	TEMP(R) T-STAG	MACH NO VELOCITY
1	0.0	9.15118E-07	4.81602E-04	0.0	2.2743	8590.5	546.95	0.45907
	1.4000	9.15118E-03	526.27	0.0	0.0	9025.9	570.00	526.27
2	0.24	1.06357E-03	0.55772	-1.26095E-02	2635.8	8588.2	546.97	0.45682
	1.4000	9.14639E-03	525.86	-11.489	-1.2952	9921.8	570.00	526.00
3	0.95	2.12043E-03	1.1071	-5.05492E-02	5268.7	8593.6	547.26	0.45576
	1.4000	9.14925E-03	522.09	-23.839	-2.6144	9909.4	570.00	522.63
4	2.12	3.18137E-03	1.6392	-0.11374	7502.0	8605.2	547.80	0.45018
	1.4000	9.15265E-03	515.24	-35.751	-3.9692	9869.0	570.00	516.48
5	3.74	4.24765E-03	2.1375	-0.20002	10544.	8632.4	548.74	0.44017
	1.4000	9.16588E-03	503.23	-47.089	-5.3458	9861.0	570.00	505.43
6	5.78	5.32841E-03	2.6231	-0.31089	13220.	8673.7	549.39	0.43308
	1.4000	9.19880E-03	494.16	-58.346	-6.7338	9866.9	570.00	497.59
7	8.29	6.42136E-03	3.2416	-0.46433	15943.	8694.1	548.35	0.44432
	1.4000	9.23784E-03	504.86	-72.313	-8.1512	9956.0	570.00	510.02
8	11.36	7.51050E-03	3.9515	-0.66411	18674.	8684.2	546.31	0.46566
	1.4000	9.26183E-03	526.14	-88.425	-9.5402	10075.	570.00	533.51
9	15.11	8.57776E-03	4.8052	-0.91755	21377.	8624.8	542.93	0.49933
	1.4000	9.25595E-03	560.20	-106.97	-10.810	10226.	570.00	570.32
10	19.54	9.62314E-03	5.5681	-1.1719	24016.	8568.8	540.90	0.51866
	1.4000	9.23022E-03	578.62	-121.78	-11.865	10294.	570.00	591.29
11	24.56	1.06634E-02	6.2260	-1.4138	26626.	8533.7	540.14	0.52572
	1.4000	9.20525E-03	584.06	-132.59	-12.790	10302.	570.00	598.92
12	30.17	1.17103E-02	6.8444	-1.6630	29247.	8516.0	539.89	0.52807
	1.4000	9.19049E-03	594.45	-142.01	-13.657	10298.	570.00	601.46
13	36.27	1.27681E-02	7.4085	-1.9262	31883.	8514.3	540.08	0.52628
	1.4000	9.18529E-03	553.23	-153.86	-14.574	10282.	570.00	599.53
14	42.84	1.38367E-02	7.5798	-2.2220	34549.	8518.5	540.17	0.52547
	1.4000	9.18941E-03	576.71	-160.58	-15.560	10282.	570.00	598.65
15	49.92	1.49094E-02	8.5740	-2.5569	37231.	8521.1	540.03	0.52679
	1.4000	9.19359E-03	575.07	-171.43	-16.600	10294.	570.00	600.08
16	57.48	1.59815E-02	9.1010	-2.9002	39902.	8529.7	540.27	0.52457
	1.4000	9.19775E-03	569.47	-181.47	-17.675	10288.	570.00	597.68
17	65.44	1.70575E-02	9.5332	-3.2422	42568.	8545.6	540.99	0.51776
	1.4000	9.20361E-03	558.88	-190.07	-18.783	10260.	570.00	590.32
18	[illegible]	1.8161[illegible]E-02	9.8788	-3.5342	45288.	8591.6	542.13	0.50697
	1.4000	9.22295E-03	543.93	-197.35	-19.942	10227.	570.00	578.62
19	82.35	1.92959E-02	10.257	-3.9755	48096.	8625.3	542.95	0.49906
	1.4000	9.25587E-03	531.50	-206.00	-21.185	10225.	570.00	570.03
20	91.16	2.04459E-02	10.358	-4.2867	50881.	8686.9	544.98	0.47914
	1.4000	9.28953E-03	506.63	-209.67	-22.482	10167.	570.00	548.30
21	100.00	2.16109E-02	10.322	-4.5418	53695.	8763.0	547.33	0.45503
	1.4000	9.32832E-03	477.64	-210.16	-23.749	10100.	570.00	521.83

ITERATION NO.= 300   X-STATION NO.= 11   Y-INNER = 0.0001   Y-OUTER = 2.2725   OUTPUT NO. = 2

STREAMLINE %	W1	W2	W3	W4	P-STAT	TEMP(R)	MACH NO
CP/CV	DENSITY	U	V	FLOW ANG(D)	P-STAG	T-STAG	VELOCITY
1 0.0 1.4000	9.06005E-07 9.06006E-03	4.98894E-04 550.65	0.0 0.0	2.2551 0.0	8470.9 9925.9	544.76 570.00	0.48130 550.65
2 0.24 1.4000	1.03019E-03 9.05902E-03	0.56641 549.81	-1.71382E-02 -11.782	2564.1 -1.2277	8471.0 9921.8	544.83 570.00	0.48084 549.93
3 0.95 1.4000	2.05842E-03 9.05439E-03	1.1274 547.68	-4.88798E-02 -23.722	5122.7 -2.4801	8469.1 9909.4	544.99 570.00	0.47905 548.20
4 2.12 1.4000	3.08433E-03 9.04602E-03	1.6787 544.28	-0.11079 -35.921	7674.5 -3.7759	8465.2 9889.0	545.23 570.00	0.47655 545.46
5 3.76 1.4000	4.10965E-03 9.04054E-03	2.2105 537.88	-0.19689 -47.907	10222. -5.0897	8467.7 9860.7	545.73 570.00	0.47158 540.01
6 5.84 1.4000	5.14320E-03 9.09174E-03	2.7543 535.51	-0.30760 -59.807	12792. -6.3725	8479.8 9868.2	545.83 570.00	0.47051 538.84
7 8.41 1.4000	6.19327E-03 9.08349E-03	3.3900 547.37	-0.45310 -73.160	15417. -7.6129	8490.5 9958.1	544.62 570.00	0.48275 552.24
8 11.55 1.4000	7.25263E-03 9.11777E-03	4.0947 564.58	-0.63276 -87.246	18076. -8.7845	8494.7 10078.	542.83 570.00	0.50022 571.29
9 15.33 1.4000	8.30426E-03 9.13901E-03	4.9056 590.73	-0.85640 -103.13	20737. -9.9026	8467.4 10227.	540.07 570.00	0.52641 599.67
10 19.75 1.4000	9.33322E-03 9.12625E-03	5.6408 604.38	-1.0911 -116.90	23332. -10.947	8434.1 10294.	538.46 570.00	0.54119 615.58
11 24.76 1.4000	1.03440E-02 9.10329E-03	6.3009 609.13	-1.3288 -128.46	25871. -11.909	8401.6 10302.	537.74 570.00	0.54766 622.53
12 30.31 1.4000	1.13921E-02 9.08225E-03	6.9337 610.78	-1.5825 -139.40	28401. -12.857	8375.9 10298.	537.33 570.00	0.55135 626.49
13 36.37 1.4000	1.23656E-02 9.06877E-03	7.5225 608.34	-1.8531 -149.96	30936. -13.839	8363.4 10283.	537.33 570.00	0.55139 626.52
14 42.93 1.4000	1.33903E-02 9.06494E-03	8.1170 606.18	-2.1551 -160.94	33502. -14.869	8358.8 10282.	537.26 570.00	0.55200 627.18
15 49.99 1.4000	1.44245E-02 9.06760E-03	8.7252 604.89	-2.4957 -173.02	36094. -15.962	8358.0 10294.	537.05 570.00	0.55384 629.14
16 57.53 1.4000	1.54652E-02 9.07368E-03	9.2584 598.66	-2.8524 -184.44	38691. -17.124	8368.1 10282.	537.34 570.00	0.55130 626.43
17 65.48 1.4000	1.65161E-02 9.03467E-03	9.6930 586.88	-3.2151 -194.67	41296. -18.351	8391.3 10260.	538.18 570.00	0.54374 618.37
18 73.75 1.4000	1.75537E-02 9.10819E-03	10.043 570.85	-3.5649 -203.70	43953. -19.638	8432.9 10227.	539.42 570.00	0.53258 606.11
19 82.34 1.4000	1.87015E-02 9.14381E-03	10.427 557.54	-4.0027 -214.03	46692. -21.001	8479.6 10225.	540.51 570.00	0.52413 597.21
20 91.14 1.4000	1.98132E-02 9.17753E-03	10.561 533.04	-4.3530 -219.70	49398. -22.400	8542.5 10168.	542.33 570.00	0.50505 576.54
21 100.00 1.4000	2.09404E-02 9.21472E-03	10.576 505.05	-4.6534 -222.22	52125. -23.749	8613.9 10100.	544.66 570.00	0.48233 551.78

ITERATION NO. = 300   X-STATION NO. = 12   Y-INNER = 0.0001   Y-OUTER = 2.2284   OUTPUT NO. = 2

	STREAMLINE % / CP/CV	W1 / DENSITY	W2 / U	W3 / V	W4 / FLOW ANG(O)	P-STAT / P-STAG	TEMP(F) / T-STAG	MACH NO / VELOCITY
1	0.0	8.95714E-07	5.16926E-04	0.0	2.2333	8336.5	547.28	0.50558
	1.4000	8.95714E-03	577.11	0.0	0.0	9925.9	570.00	577.11
2	0.24	9.98658E-04	0.57573	-1.14002E-02	2489.9	8335.6	542.32	0.50513
	1.4000	8.95537E-03	576.51	-11.415	-1.1344	9921.8	570.00	576.62
3	0.95	1.95499E-03	1.1472	-4.59298E-02	4973.3	8330.8	542.43	0.50415
	1.4000	8.94848E-03	575.09	-23.024	-2.2924	9909.5	570.00	575.56
4	2.12	2.96753E-03	1.7122	-0.10444	7447.4	8320.7	542.56	0.50288
	1.4000	8.93548E-03	573.11	-34.957	-3.4905	9889.1	570.00	574.18
5	3.76	3.97640E-03	2.2647	-0.18640	9910.7	8310.7	542.82	0.50037
	1.4000	8.92050E-03	565.53	-46.875	-4.7051	9860.7	570.00	571.46
6	5.86	4.96525E-03	2.8381	-0.29295	12385.	8303.2	542.55	0.50298
	1.4000	8.91686E-03	571.25	-58.965	-5.8932	9869.0	570.00	574.29
7	8.46	5.97329E-03	3.5005	-0.43225	14907.	8299.2	540.98	0.51791
	1.4000	8.93416E-03	556.03	-72.364	-7.0393	9960.0	570.00	590.48
8	11.64	6.99098E-03	4.2204	-0.60203	17469.	8292.1	539.05	0.53581
	1.4000	8.96274E-03	603.69	-86.115	-8.1184	10082.	570.00	609.80
9	15.44	8.01211E-03	5.0149	-0.83831	20055.	8276.8	536.54	0.55836
	1.4000	8.98803E-03	625.91	-100.89	-9.1564	10228.	570.00	633.99
10	19.86	9.01662E-03	5.7366	-1.0274	22590.	8259.4	535.23	0.56995
	1.4000	8.99114E-03	636.23	-113.94	-10.153	10295.	570.00	646.35
11	24.85	1.00005E-02	6.3904	-1.2552	25064.	8236.6	534.70	0.57453
	1.4000	8.97513E-03	639.01	-125.51	-11.113	10302.	570.00	651.22
12	30.36	1.09753E-02	7.0285	-1.5054	27515.	8211.5	534.30	0.57801
	1.4000	8.95459E-03	640.39	-137.16	-12.089	10298.	570.00	654.92
13	36.39	1.19493E-02	7.6335	-1.7786	29959.	8193.6	534.19	0.57896
	1.4000	8.93688E-03	638.82	-148.85	-13.116	10283.	570.00	655.93
14	42.92	1.29316E-02	8.2457	-2.0871	32426.	8182.1	533.99	0.58067
	1.4000	8.92762E-03	637.64	-161.40	-14.204	10282.	570.00	657.75
15	49.96	1.39254E-02	8.8458	-2.4380	34925.	8177.3	533.71	0.58308
	1.4000	8.92707E-03	636.66	-175.07	-15.375	10294.	570.00	660.30
16	57.48	1.49270E-02	9.4130	-2.8125	37431.	8194.7	533.95	0.58105
	1.4000	8.93123E-03	630.60	-188.41	-16.635	10288.	570.00	658.15
17	65.41	1.59390E-02	9.8474	-3.2013	39947.	8295.6	534.74	0.57417
	1.4000	8.94075E-03	619.07	-200.84	-17.974	10260.	570.00	650.86
18	73.68	1.69756E-02	10.244	-3.6023	42510.	8243.7	535.94	0.56369
	1.4000	8.96208E-03	603.46	-212.21	-19.374	10228.	570.00	639.68
19	82.27	1.80452E-02	10.645	-4.0516	45161.	8290.1	536.84	0.55577
	1.4000	8.99752E-03	599.93	-224.53	-20.837	10225.	570.00	631.21
20	91.09	1.91272E-02	10.808	-4.4370	47809.	8357.4	535.94	0.53678
	1.4000	9.03513E-03	565.08	-231.97	-22.319	10168.	570.00	610.84
21	100.00	2.02344E-02	10.844	-4.7714	50479.	8432.4	541.46	0.51332
	1.4000	9.08025E-03	535.93	-235.81	-23.749	10100.	570.00	585.51

ITERATION NO.= 300   X-STATION NO.= 13   Y-INNER = 0.0301   Y-OUTER = 2.1842   OUTPUT NO. = 2

STREAMLINE %	W1	W2	W3	W4	P-STAT	TEMP(R)	MACH NO
CP/CV	DENSITY	U	V	FLOW ANG(D)	P-STAG	T-STAG	VELOCITY
1 0.0	8.84519E-07	5.34933E-04	0.0	2.2095	8191.0	539.56	0.53114
1.4000	8.84519E-03	604.77	0.0	0.0	9925.9	570.00	604.77
2 0.24	9.46363E-04	0.58447	-1.04561E-02	2414.0	8186.9	539.54	0.53127
1.4000	8.84098E-03	604.81	-10.820	-1.0249	9921.8	570.00	604.91
3 0.94	1.93010E-03	1.1654	-4.22502E-02	4821.2	8180.6	539.61	0.53061
1.4000	8.83302E-03	603.80	-21.890	-2.0763	9909.6	570.00	604.19
4 2.11	2.69013E-03	1.7406	-9.62352E-02	7218.7	8169.2	539.72	0.52967
1.4000	8.81905E-03	632.27	-35.298	-3.1645	9889.3	570.00	603.19
5 3.74	3.84581E-03	2.3055	-0.17217	9604.4	8156.6	539.92	0.52779
1.4000	8.80210E-03	599.49	-44.768	-4.2707	9861.0	570.00	601.16
6 5.84	4.50292E-03	2.8913	-0.27130	11997.	8144.3	539.57	0.53101
1.4000	8.79454E-03	601.98	-56.486	-5.3605	9868.4	570.00	604.63
7 8.44	5.77026E-03	3.5615	-0.40173	14431.	8128.2	537.85	0.54667
1.4000	8.80513E-03	617.57	-59.535	-6.4242	9959.4	570.00	621.47
8 11.60	6.74831E-03	4.2906	-0.55983	16901.	8116.7	535.78	0.56511
1.4000	8.82669E-03	635.81	-82.958	-7.4338	10081.	570.00	641.19
9 15.38	7.73026E-03	5.0862	-0.75149	19395.	8096.2	533.18	0.58761
1.4000	8.84733E-03	657.96	-97.214	-8.4047	10228.	570.00	665.10
10 19.77	8.65742E-03	5.8117	-0.95570	21841.	8076.6	531.83	0.59904
1.4000	8.84633E-03	658.21	-109.88	-9.3383	10294.	570.00	677.18
11 24.73	9.64345E-03	6.4771	-1.1710	24227.	8050.5	531.22	0.60414
1.4000	8.82980E-03	671.66	-121.43	-10.248	10302.	570.00	682.55
12 30.21	1.05775E-02	7.1304	-1.4110	26583.	8019.6	530.69	0.60854
1.4000	8.80466E-03	674.11	-133.40	-11.193	10298.	570.00	687.18
13 36.21	1.15267E-02	7.7563	-1.6776	28924.	7992.9	530.41	0.61089
1.4000	8.78001E-03	674.07	-145.80	-12.205	10283.	570.00	689.65
14 42.72	1.24408E-02	8.3905	-1.9824	31280.	7971.2	530.03	0.61408
1.4000	8.74250E-03	674.43	-159.35	-13.293	10281.	570.00	693.00
15 49.74	1.33845E-02	9.0338	-2.3327	33664.	7956.3	529.55	0.61797
1.4000	8.75397E-03	674.94	-174.28	-14.479	10294.	570.00	697.08
16 57.25	1.43345E-02	9.6119	-2.7141	36053.	7953.6	529.59	0.61765
1.4000	8.75046E-03	670.53	-189.33	-15.768	10288.	570.00	696.75
17 65.20	1.52956E-02	10.105	-3.1203	38453.	7965.6	530.21	0.61256
1.4000	8.75346E-03	660.63	-204.00	-17.161	10262.	570.00	691.41
18 73.51	1.62833E-02	10.516	-3.5509	40905.	7998.0	531.32	0.60329
1.4000	8.77056E-03	645.84	-218.07	-18.658	10228.	570.00	681.66
19 82.15	1.73122E-02	10.936	-4.0426	43463.	8045.0	532.25	0.59550
1.4000	8.80677E-03	631.67	-233.51	-20.288	10225.	570.00	673.45
20 91.04	1.83696E-02	11.113	-4.4958	46042.	8121.5	534.54	0.57528
1.4000	8.85237E-03	605.02	-244.76	-22.025	10168.	570.00	652.65
21 100.00	1.94776E-02	11.130	-4.8970	48721.	8227.5	537.56	0.54928
1.4000	8.91752E-03	571.40	-251.42	-23.749	10100.	570.00	624.27

ITERATION NO.= 300 X-STATION NO.= 14 Y-INNER = 0.0301 Y-OUTER = 2.1400 OUTPUT NO. = 2

	STREAMLINE % / CP/CV	W1 / DENSITY	W2 / U	W3 / V	W4 / FLOW ANG(D)	P-STAT / P-STAG	TEMP(R) / T-STAG	MACH NO / VELOCITY
1	0.0	8.72088E-07	5.53172E-04	0.0	2.1830	8030.3	536.51	0.55866
	1.4000	8.72088E-03	634.31	0.0	0.0	9925.9	570.00	634.31
2	0.23	9.33503E-04	0.59221	-9.48943E-03	2336.8	8026.1	536.49	0.55882
	1.4000	8.71659E-03	634.39	-10.165	-0.91802	9921.8	570.00	634.47
3	0.93	1.86419E-03	1.1815	-3.85194E-02	4666.4	8018.3	536.53	0.55847
	1.4000	8.70749E-03	633.77	-20.663	-1.8674	9909.7	570.00	634.11
4	2.10	2.79105E-03	1.7658	-8.79653E-02	6986.1	8005.6	536.60	0.55786
	1.4000	8.69255E-03	632.46	-31.517	-2.8519	9889.5	570.00	633.45
5	3.72	3.71326E-03	2.3413	-0.15774	9293.5	7991.1	536.76	0.55645
	1.4000	8.67423E-03	630.51	-42.479	-3.8543	9861.3	570.00	631.94
6	5.80	4.63606E-03	2.9356	-0.24884	11606.	7976.4	536.39	0.55577
	1.4000	8.66433E-03	633.22	-53.674	-4.8450	9867.3	570.00	635.49
7	8.39	5.56710E-03	3.6127	-0.36528	13954.	7955.3	534.58	0.57555
	1.4000	8.67056E-03	648.94	-66.153	-5.8206	9957.8	570.00	652.30
8	11.53	6.50626E-03	4.3425	-0.51432	16332.	7936.8	532.40	0.59423
	1.4000	8.68585E-03	667.43	-79.050	-6.7546	10078.	570.00	672.10
9	15.28	7.44682E-03	5.1408	-0.69117	18729.	7907.2	529.61	0.61746
	1.4000	8.69695E-03	690.34	-92.814	-7.6573	10226.	570.00	696.55
10	19.62	8.37141E-03	5.8733	-0.88364	21076.	7978.9	528.11	0.62978
	1.4000	8.69256E-03	701.59	-105.20	-8.5274	10292.	570.00	709.43
11	24.54	9.27322E-03	6.5556	-1.0833	23360.	7842.4	527.27	0.63658
	1.4000	8.66617E-03	736.94	-116.82	-9.3833	10302.	570.00	716.53
12	29.98	1.01605E-02	7.2270	-1.3120	25608.	7800.4	526.50	0.64272
	1.4000	8.63221E-03	711.29	-129.13	-10.290	10299.	570.00	722.91
13	35.94	1.10388E-02	7.8753	-1.5709	27832.	7760.4	525.95	0.64712
	1.4000	8.59693E-03	713.42	-142.31	-11.281	10283.	570.00	727.48
14	42.42	1.19172E-02	8.5325	-1.8724	30061.	7723.6	525.28	0.65247
	1.4000	8.56715E-03	715.98	-157.12	-12.377	10281.	570.00	733.02
15	49.43	1.28007E-02	9.2014	-2.2269	32307.	7691.8	524.47	0.65881
	1.4000	8.54500E-03	718.83	-173.96	-13.605	10293.	570.00	739.58
16	56.94	1.36867E-02	9.8134	-2.6261	34551.	7671.7	524.14	0.66139
	1.4000	8.52739E-03	717.01	-191.87	-14.982	10288.	570.00	742.23
17	64.90	1.45307E-02	10.348	-3.0685	36802.	7665.1	524.39	0.65944
	1.4000	8.51664E-03	709.68	-210.45	-16.517	10263.	570.00	740.23
18	73.25	1.54599E-02	10.800	-3.5537	39099.	7660.8	525.21	0.65300
	1.4000	8.52081E-03	696.81	-229.78	-18.213	10228.	570.00	733.56
19	81.96	1.64655E-02	11.250	-4.1093	41515.	7717.2	525.96	0.64707
	1.4000	8.54302E-03	693.27	-249.57	-20.065	10226.	570.00	727.42
20	90.93	1.74853E-02	11.465	-4.6225	44013.	7799.9	528.40	0.62744
	1.4000	8.60072E-03	655.70	-264.36	-21.958	10169.	570.00	706.99
21	100.00	1.85931E-02	11.500	-5.0600	46686.	7933.0	531.99	0.59767
	1.4000	8.68835E-03	618.51	-272.14	-23.749	10100.	570.00	675.74

ITERATION NO.= 300 X-STATION NO.= 15 Y-INNER = 0.0001 Y-OUTER = 2.0959 OUTPUT NO. = 2

STREAMLINE %	W1	W2	W3	W4	P-STAT	TEMP(R)	MACH NO
CP/CV	DENSITY	U	V	FLOW ANG(D)	P-STAG	T-STAG	VELOCITY
1 0.0	8.59710E-07	5.69681E-04	0.0	2.1565	7871.2	533.45	0.58529
1.4000	8.59710E-03	662.64	0.0	0.0	9925.9	570.00	662.64
2 0.23	9.00744E-04	0.59806	-8.22136E-03	2259.7	7860.2	533.30	0.58659
1.4000	8.58751E-03	663.96	-9.1273	-0.78759	9921.9	570.00	664.02
3 0.92	1.79831E-03	1.1939	-3.37568E-02	4511.5	7849.8	533.28	0.58673
1.4000	8.57646E-03	663.90	-18.771	-1.6196	9909.8	570.00	664.16
4 2.07	2.69178E-03	1.7858	-7.76498E-02	6752.9	7834.7	533.30	0.58661
1.4000	8.55976E-03	663.41	-28.847	-2.4898	9889.9	570.00	664.04
5 3.68	3.57993E-03	2.3706	-0.13996	8980.6	7816.6	533.37	0.58595
1.4000	8.53869E-03	662.19	-39.096	-3.3789	9862.0	570.00	663.35
6 5.74	4.46733E-03	2.9721	-0.22135	11210.	7797.6	532.95	0.58953
1.4000	8.52462E-03	665.29	-49.549	-4.2594	9865.2	570.00	667.13
7 8.30	5.36127E-03	3.6525	-0.32809	13470.	7770.6	531.05	0.60554
1.4000	8.52556E-03	681.28	-61.197	-5.1329	9954.7	570.00	684.02
8 11.41	6.26095E-03	4.3824	-0.45852	15756.	7745.1	528.77	0.62436
1.4000	8.53420E-03	699.95	-73.235	-5.9731	10073.	570.00	703.77
9 15.10	7.15995E-03	5.1825	-0.61680	18055.	7706.2	525.77	0.64853
1.4000	8.53982E-03	723.82	-86.146	-6.7971	10724.	570.00	728.93
10 19.39	8.03981E-03	5.9210	-0.78660	20297.	7666.7	524.06	0.66207
1.4000	8.52389E-03	736.47	-97.839	-7.5674	10288.	570.00	742.94
11 24.22	8.89378E-03	6.6217	-0.96998	22471.	7615.8	522.87	0.67133
1.4000	8.48645E-03	744.53	-109.06	-8.3337	10301.	570.00	752.48
12 29.62	9.72870E-03	7.3123	-1.1780	24599.	7557.3	521.76	0.67994
1.4000	8.43927E-03	751.62	-121.09	-9.1519	10299.	570.00	761.31
13 35.53	1.05475E-02	7.9575	-1.4170	26688.	7496.4	520.76	0.68755
1.4000	8.38718E-03	757.28	-134.96	-10.060	10284.	570.00	769.11
14 41.96	1.13574E-02	8.6740	-1.6981	28760.	7434.3	519.59	0.69649
1.4000	8.33650E-03	763.73	-149.51	-11.076	10280.	570.00	778.23
15 48.94	1.21632E-02	9.3797	-2.0315	30830.	7373.0	518.18	0.70712
1.4000	8.29023E-03	771.15	-167.02	-12.221	10293.	570.00	789.03
16 56.44	1.29626E-02	10.043	-2.4114	32879.	7319.2	517.15	0.71481
1.4000	8.24617E-03	774.80	-186.03	-13.501	10289.	570.00	796.82
17 64.43	1.37652E-02	10.643	-2.8380	34925.	7290.3	516.70	0.71816
1.4000	8.20951E-03	773.19	-206.17	-14.930	10265.	570.00	800.21
18 72.86	1.45907E-02	11.168	-3.3148	37014.	7256.4	516.94	0.71638
1.4000	8.18998E-03	765.40	-227.18	-16.532	10229.	570.00	798.41
19 81.68	1.54732E-02	11.680	-3.8871	39242.	7283.1	517.32	0.71355
1.4000	8.20284E-03	754.84	-251.21	-18.408	10226.	570.00	795.55
20 90.81	1.64259E-02	11.945	-4.5351	41593.	7357.5	519.64	0.69612
1.4000	8.24960E-03	727.20	-276.09	-20.790	10170.	570.00	777.85
21 100.00	1.76190E-02	11.855	-5.2163	44451.	7574.9	525.02	0.65450
1.4000	8.40640E-03	672.87	-296.06	-23.749	10100.	570.00	735.12

ITERATION NO.= 300 X-STATION NO.= 16 Y-INNER = 0.0001 Y-OUTER = 2.0517 OUTPUT NO. = 2

STREAMLINE # CP/CV	W1 DENSITY	W2 U	W3 V	W4 FLOW ANG(D)	P-STAT P-STAG	TEMP(R) T-STAG	MACH NO VELOCITY
1 0.0	8.46143E-07	5.56070E-04	0.0	2.1274	7697.9	530.07	0.61373
1.4000	8.46143E-03	692.64	0.0	0.0	9925.9	570.00	692.64
2 0.23	8.66326E-04	0.60394	-6.98530E-03	2179.0	7668.2	529.54	0.61805
1.4000	8.43715E-03	697.12	-8.0631	-0.66267	9921.9	570.00	697.17
3 0.91	1.72899E-03	1.2064	-2.90980E-02	4349.0	7654.3	529.45	0.61881
1.4000	8.42340E-03	697.76	-16.824	-1.3812	9910.0	570.00	697.96
4 2.05	2.58721E-03	1.8058	-6.74750E-02	6537.9	7636.3	529.40	0.61927
1.4000	8.40439E-03	697.95	-26.080	-2.1400	9990.3	570.00	698.44
5 3.64	3.43959E-03	2.4002	-0.12233	8659.7	7612.6	529.35	0.61965
1.4000	8.37911E-03	697.94	-35.571	-2.9176	9862.7	570.00	698.84
6 5.68	4.28779E-03	3.0099	-0.19441	10790.	7586.0	528.81	0.62404
1.4000	8.35825E-03	701.97	-45.341	-3.6957	9863.1	570.00	703.43
7 8.22	5.14051E-03	3.6550	-0.28871	12954.	7549.3	526.73	0.64087
1.4000	8.35367E-03	718.79	-56.164	-4.4678	9951.8	570.00	720.98
8 11.29	5.95571E-03	4.4268	-0.40330	15135.	7511.9	524.25	0.66057
1.4000	8.34870E-03	738.33	-67.265	-5.2055	10068.	570.00	741.39
9 14.94	6.84723E-03	5.2272	-0.54073	17323.	7459.6	520.97	0.68596
1.4000	8.34276E-03	763.41	-78.971	-5.9060	10219.	570.00	767.48
10 19.17	7.67470E-03	5.5752	-0.68832	19444.	7402.3	518.88	0.70188
1.4000	8.31237E-03	778.56	-89.687	-6.5712	10285.	570.00	783.71
11 23.96	8.47209E-03	6.6937	-0.84910	21488.	7330.7	517.20	0.71441
1.4000	8.25822E-03	790.09	-100.22	-7.2293	10301.	570.00	798.42
12 29.29	9.24392E-03	7.4036	-1.0318	23472.	7248.4	515.57	0.72654
1.4000	8.19149E-03	800.92	-111.62	-7.9341	10299.	570.00	808.66
13 35.15	9.98963E-03	8.1054	-1.2422	25394.	7157.6	513.91	0.73869
1.4000	8.11467E-03	811.39	-124.35	-8.7128	10285.	570.00	820.86
14 41.54	1.07117E-02	6.8221	-1.4913	27266.	7057.0	511.93	0.75313
1.4000	8.03193E-03	823.60	-139.22	-9.5948	10279.	570.00	835.28
15 48.45	1.14141E-02	9.5626	-1.7981	29101.	6949.7	509.51	0.77049
1.4000	7.94730E-03	837.79	-157.53	-10.649	10292.	570.00	852.47
16 55.99	1.20933E-02	10.271	-2.1734	30872.	6840.1	507.24	0.78655
1.4000	7.85698E-03	849.53	-179.77	-11.948	10289.	570.00	868.34
17 63.99	1.27601E-02	10.919	-2.6301	32620.	6744.9	505.52	0.79860
1.4000	7.77403E-03	855.68	-206.12	-13.544	10267.	570.00	880.16
18 72.46	1.34203E-02	11.495	-3.2005	34338.	6659.3	504.20	0.80775
1.4000	7.69532E-03	856.50	-238.48	-15.559	10230.	570.00	889.08
19 81.36	1.40475E-02	12.056	-3.9981	35997.	6553.8	501.95	0.82333
1.4000	7.63746E-03	858.23	-284.61	-18.347	10227.	570.00	904.20
20 90.61	1.45520E-02	12.414	-4.9799	37579.	6459.1	500.64	0.83231
1.4000	7.51723E-03	847.24	-339.88	-21.859	10172.	570.00	912.87
21 100.00	1.61041E-02	12.430	-5.4692	41022.	6881.4	510.81	0.76116
1.4000	7.84915E-03	771.86	-339.62	-23.749	10100.	570.00	843.27

ITERATION NO. = 100 X-STATION NO. = 17 Y-INNER = 0.0001 Y-OUTER = 2.0075 OUTPUT NO. = 2

STREAMLINE	% CP/CV	W1 DENSITY	W2 U	W3 V	W4 FLOW ANG(D)	P-STAT P-STAG	TEMP(R) T-STAG	MACH NO VELOCITY
1	0.0	9.24864E-07	6.08556E-04	0.0	2.0815	7428.2	524.69	0.65706
	1.4000	8.24864E-03	737.77	0.0	0.0	9925.9	570.00	737.77
2	0.23	4.28650E-04	0.61092	-4.87981E-03	2091.0	7428.2	524.75	0.65659
	1.4000	8.24773E-03	737.25	-5.8889	-0.45765	9921.9	570.00	737.28
3	0.90	1.65375E-03	1.2204	-2.25477E-02	4173.3	7414.7	524.66	0.65734
	1.4000	8.23419E-03	737.93	-13.634	-1.0565	9910.2	570.00	738.06
4	2.03	2.47373E-03	1.8277	-5.30825E-02	6243.1	7393.4	524.52	0.65940
	1.4000	8.21263E-03	738.64	-21.458	-1.6636	9890.6	570.00	739.16
5	3.61	3.28557E-03	2.4323	-9.79885E-02	8293.2	7362.4	524.31	0.66008
	1.4000	8.18161E-03	740.29	-29.824	-2.3070	9863.3	570.00	740.89
6	5.64	4.09165E-03	3.0519	-0.15368	10333.	7325.1	523.58	0.66503
	1.4000	8.15151E-03	745.87	-37.558	-2.8627	9861.5	570.00	746.82
7	8.15	4.89742E-03	3.7432	-0.22984	12388.	7273.3	521.19	0.69428
	1.4000	8.13093E-03	764.23	-46.930	-3.5136	9945.5	570.00	765.77
8	11.20	5.65906E-03	4.4807	-0.32049	14444.	7214.5	518.29	0.70632
	1.4000	8.11035E-03	786.21	-56.235	-4.0912	10064.	570.00	788.22
9	14.81	6.48998E-03	5.2824	-0.43186	16491.	7136.2	514.49	0.73449
	1.4000	8.08157E-03	813.93	-66.542	-4.6737	10214.	570.00	816.65
10	19.00	7.24849E-03	6.0446	-0.54933	18434.	7045.5	511.64	0.75521
	1.4000	8.02330E-03	833.92	-75.786	-5.1927	10263.	570.00	837.35
11	23.75	7.96980E-03	6.7821	-0.67198	20375.	6937.9	509.13	0.77314
	1.4000	7.93964E-03	850.97	-84.316	-5.6585	10301.	570.00	855.14
12	29.04	8.65028E-03	7.5120	-0.80762	22113.	4616.3	506.59	0.79110
	1.4000	7.83964E-03	867.81	-93.298	-6.1363	10299.	570.00	872.81
13	34.87	9.29815E-03	8.2399	-0.96493	23798.	6673.8	503.74	0.81100
	1.4000	7.71926E-03	886.19	-103.78	-6.6792	10285.	570.00	892.24
14	41.25	9.87727E-03	8.9872	-1.1646	25345.	6494.8	499.93	0.83712
	1.4000	7.56932E-03	909.89	-117.91	-7.3636	10279.	570.00	917.49
15	48.19	1.03943E-02	9.7597	-1.4061	26758.	6285.1	495.09	0.86975
	1.4000	7.39659E-03	938.95	-135.27	-8.1981	10291.	570.00	948.64
16	55.70	1.07945E-02	10.518	-1.6678	27901.	6016.9	488.99	0.91015
	1.4000	7.16936E-03	974.38	-154.51	-9.0102	10289.	570.00	986.55
17	63.74	1.11583E-02	11.219	-1.9639	28951.	5762.9	483.28	0.94721
	1.4000	6.94779E-03	1005.4	-176.00	-9.9295	10268.	570.00	1020.7
18	72.29	1.13[illegible]3E-02	11.875	-2.2401	29709.	5462.9	476.46	0.99074
	1.4000	6.68034E-03	1041.7	-196.51	-10.683	10230.	570.00	1060.1
19	81.32	1.13846E-02	12.510	-2.4891	29885.	5034.3	465.51	1.0594
	1.4000	6.30111E-03	1098.9	-218.64	-11.253	10227.	570.00	1120.4
20	90.74	1.08611E-02	12.950	-2.2689	28837.	4379.3	448.04	1.1656
	1.4000	5.69501E-03	1192.3	-208.90	-9.9377	10171.	570.00	1210.5
21	100.00	8.68843E-03	12.068	-2.4936	23746.	2990.4	402.57	1.4420
	1.4000	4.32797E-03	1388.9	-287.01	-11.675	10100.	570.00	1418.3

ITERATION NO.= 300 X-STATION NO.= 18 Y-INNER = 0.0001 Y-OUTER = 2.0102 OUTPUT NO. = 2

STREAMLINE % / CP/CV		W1 / DENSITY	W2 / U	W3 / V	W4 / FLOW ANG(D)	P-STAT / P-STAG	TEMP(R) / T-STAG	MACH NO / VELOCITY
1	0.0	8.13472E-07	6.19130E-04	0.0	2.0568	7285.0	521.78	0.67972
	1.4000	8.13472E-03	761.10	0.0	0.0	9925.9	570.00	761.10
2	0.23	8.15992E-04	0.62442	-3.15500E-03	2064.0	7256.3	521.26	0.68377
	1.4000	8.11095E-03	765.23	-3.8665	-0.28949	9921.9	570.00	765.24
3	0.92	1.62759E-03	1.2480	-1.75055E-02	4117.4	7237.6	521.05	0.68535
	1.4000	8.09513E-03	766.78	-10.755	-0.80562	9909.9	570.00	766.85
4	2.07	2.43316E-03	1.8701	-4.23218E-02	6156.3	7210.9	520.80	0.68725
	1.4000	8.06719E-03	768.60	-17.394	-1.2964	9889.9	570.00	768.80
5	3.69	3.22912E-03	2.4905	-7.93352E-02	8172.2	7172.9	520.44	0.69003
	1.4000	8.03231E-03	771.25	-24.569	-1.8246	9861.9	570.00	771.64
6	5.76	4.01711E-03	3.1305	-0.12474	10174.	7124.4	519.37	0.69814
	1.4000	7.99235E-03	779.29	-31.051	-2.2818	9865.8	570.00	779.90
7	8.34	4.80136E-03	3.8387	-0.18865	12182.	7059.3	515.67	0.71841
	1.4000	7.96081E-03	799.49	-39.292	-2.8136	9955.9	570.00	800.46
8	11.45	5.57589E-03	4.5953	-0.25951	14180.	6981.1	513.29	0.74528
	1.4000	7.92448E-03	824.14	-46.541	-3.2322	10075.	570.00	825.45
9	15.15	6.53470E-03	5.4096	-0.34245	16156.	6882.7	509.06	0.77369
	1.4000	7.87770E-03	853.97	-54.055	-3.6220	10224.	570.00	855.68
10	19.43	7.05181E-03	6.1860	-0.42779	18026.	6764.9	505.64	0.79774
	1.4000	7.79520E-03	877.22	-60.664	-3.9560	10289.	570.00	879.32
11	24.28	7.71755E-03	6.9385	-0.51736	19771.	6619.9	502.55	0.82059
	1.4000	7.67810E-03	899.05	-67.036	-4.2643	10301.	570.00	901.54
12	29.69	8.55740E-03	7.6873	-0.61535	21410.	6455.4	499.78	0.84492
	1.4000	7.54078E-03	922.03	-73.506	-4.5766	10259.	570.00	924.98
13	35.65	8.88748E-03	8.4371	-0.69257	22588.	6253.5	494.48	0.87385
	1.4000	7.36849E-03	949.53	-77.927	-4.6927	10284.	570.00	952.52
14	42.17	9.31055E-03	9.2125	-0.75355	24082.	5967.4	487.96	0.91687
	1.4000	7.12536E-03	989.49	-80.937	-4.6762	10280.	570.00	992.80
15	49.26	7.66100E-03	9.9846	-0.80012	25112.	5662.2	480.52	0.96490
	1.4000	6.96562E-03	1033.5	-82.820	-4.5816	10293.	570.00	1036.8
16	56.90	9.80530E-03	10.685	-0.98340	25659.	5249.8	470.31	1.0295
	1.4000	6.50366E-03	1089.8	-100.30	-5.2585	10288.	570.00	1094.4
17	65.02	9.90431E-03	11.287	-1.2269	26082.	4869.0	460.63	1.0896
	1.4000	6.15877E-03	1139.6	-123.87	-6.2037	10263.	570.00	1146.3
18	73.54	9.86110E-05	11.799	-1.2873	26158.	4451.6	449.42	1.1582
	1.4000	5.77122E-03	1196.5	-150.54	-6.2266	10228.	570.00	1203.6
19	52.40	9.54441E-03	12.160	-1.1791	25577.	3926.2	433.61	1.2541
	1.4000	5.27557E-03	1274.1	-123.54	-5.5384	10225.	570.00	1280.1
20	91.39	8.89336E-03	12.190	-0.35550	24140.	5334.9	415.48	1.3758
	1.4000	4.65700E-03	1370.7	-39.973	-1.6704	10165.	570.00	1371.3
21	100.00	7.23681E-03	11.101	0.29649	20134.	2310.8	573.99	1.6188
	1.4000	3.60008E-03	1534.0	40.970	1.5299	10100.	570.00	1534.6

ITERATION NO.= 300 X-STATION NO.= 19 Y-INNER = 0.0001 Y-OUTER = 2.0129 OUTPUT NO. = 2

	STREAMLINE % / CP/CV	W1 / DENSITY	W2 / U	W3 / V	W4 / FLOW ANG(D)	P-STAT / P-STAG	TEMP(R) / T-STAG	MACH NO / VELOCITY
1	0.0	7.99113E-07	6.31129E-04	0.0	2.0256	7105.6	519.08	0.70786
	1.4000	7.99113E-03	789.79	0.0	0.0	9925.9	570.00	789.79
2	0.24	7.96961E-04	0.64140	1.04174E-04	2022.9	7007.5	516.09	0.72272
	1.4000	7.91123E-03	804.81	0.13071	9.30583E-03	9921.8	570.00	804.81
3	0.94	1.55800E-03	1.2829	-9.22942E-03	4031.9	6979.4	515.68	0.72575
	1.4000	7.88576E-03	807.84	-5.8120	-0.41220	9909.5	570.00	807.86
4	2.12	2.37198E-03	1.9233	-2.52060E-02	6023.8	6945.2	515.26	0.72883
	1.4000	7.85353E-03	810.90	-10.627	-0.75084	9889.1	570.00	810.97
5	3.77	3.14372E-03	2.5632	-4.93351E-02	7957.4	6896.3	514.64	0.73334
	1.4000	7.80755E-03	815.35	-15.693	-1.1027	9860.5	570.00	815.50
6	3.90	3.90382E-03	3.2271	-7.42137E-02	9929.0	6830.8	513.09	0.74469
	1.4000	7.75660E-03	826.64	-19.011	-1.3174	9870.5	570.00	826.86
7	8.53	4.65298E-03	3.9552	-0.11281	11861.	6741.4	508.81	0.76833
	1.4000	7.70454E-03	850.03	-24.244	-1.6337	9962.8	570.00	850.38
8	11.73	5.37940E-03	4.7338	-0.15603	13752.	6623.9	505.47	0.79891
	1.4000	7.63506E-03	879.98	-29.005	-1.8878	10086.	570.00	880.46
9	15.51	6.07998E-03	5.5563	-0.21134	15594.	6483.4	500.36	0.83418
	1.4000	7.54962E-03	914.01	-34.768	-2.1783	10230.	570.00	914.67
10	19.88	6.71646E-03	6.3495	-0.25574	17286.	6305.5	495.49	0.86711
	1.4000	7.41461E-03	945.37	-38.077	-2.3065	10296.	570.00	948.14
11	24.83	7.25421E-03	7.1156	-0.28697	18740.	6058.8	489.79	0.93489
	1.4000	7.20752E-03	980.87	-39.560	-2.3096	10302.	570.00	981.86
12	30.33	7.75771E-03	7.8628	-0.29412	20113.	5825.5	484.37	0.94014
	1.4000	7.00713E-03	1013.5	-37.914	-2.1423	10298.	570.00	1014.3
13	36.37	8.19708E-03	8.5913	-0.22835	21312.	5564.5	478.28	0.97923
	1.4000	6.77875E-03	1049.4	-27.892	-1.5225	10283.	570.00	1049.7
14	42.95	8.46266E-03	9.2958	-0.26315	22158.	5210.8	469.40	1.0352
	1.4000	6.46798E-03	1098.9	-31.095	-1.6708	10282.	570.00	1099.4
15	50.03	8.76805E-03	9.9838	-0.32304	23070.	4933.9	461.97	1.0813
	1.4000	6.22275E-03	1138.7	-36.842	-1.8532	10294.	570.00	1139.2
16	57.59	8.96844E-03	10.596	-0.45994	23728.	4624.8	453.59	1.1328
	1.4000	5.94064E-03	1181.5	-51.284	-2.4855	10288.	570.00	1182.6
17	65.56	9.03439E-03	11.107	-0.61193	24052.	4273.6	443.82	1.1923
	1.4000	5.61035E-03	1229.4	-67.733	-3.1536	10259.	570.00	1231.2
18	73.61	8.924015E-03	11.493	-0.55898	23945.	3653.7	431.61	1.2662
	1.4000	5.21583E-03	1287.9	-62.626	-2.7839	10227.	570.00	1289.6
19	82.40	9.63774E-03	11.724	-0.45868	23402.	3407.8	416.42	1.3579
	1.4000	4.76806E-03	1357.3	-52.871	-2.2307	10225.	570.00	1358.3
20	91.07	8.43537E-03	11.893	7.14958E-02	23028.	3063.5	404.59	1.4298
	1.4000	4.41182E-03	1409.7	8.4747	0.34445	10168.	570.00	1409.7
21	100.00	8.78986E-03	12.408	0.33139	24002.	3029.0	404.02	1.4332
	1.4000	4.36685E-03	1411.6	37.701	1.5299	10100.	570.00	1412.1

ITERATION NO.= 300 X-STATION NO.= 20 Y-INNER = 0.0001 Y-OUTER = 2.0155 OUTPUT NO. = 2

STREAMLINE % / CP/CV	W1 / DENSITY	W2 / U	W3 / V	W4 / FLOW ANG(D)	P-STAT / P-STAG	TEMP(R) / T-STAG	MACH NO / VELOCITY
1 0.0	7.53794E-07	6.60550E-04	0.0	1.9262	6547.9	505.12	0.79459
1.4000	7.53794E-03	876.03	0.0	0.0	9925.9	570.00	876.03
2 0.25	7.52763E-04	0.66959	3.70176E-03	1926.1	6457.5	504.18	0.80794
1.4000	7.46256E-03	839.25	4.9176	0.51684	9921.6	570.00	889.26
3 0.99	1.49930E-05	1.3381	-1.19023E-03	3837.5	6428.0	503.70	0.81122
1.4000	7.43540E-05	892.45	-0.79385	-5.09655E-02	9908.7	570.00	892.45
4 2.22	2.23754E-03	2.0051	-9.18685E-03	5730.0	6370.9	503.18	0.81481
1.4000	7.40320E-03	895.94	-4.1051	-0.26252	9887.3	570.00	895.95
5 3.95	2.56243E-03	2.6705	-1.92118E-02	7589.2	6355.0	502.36	0.82052
1.4000	7.54751E-05	901.45	-6.4851	-0.41218	9857.4	570.00	901.48
6 6.17	3.67107E-03	3.3625	-2.67341E-02	9418.4	6252.2	500.17	0.83553
1.4000	7.29445E-03	915.94	-7.2824	-0.45553	9850.2	570.00	915.97
7 8.95	4.35855E-03	4.1064	-3.82187E-02	11212.	6136.6	496.10	0.86300
1.4000	7.20713E-05	942.19	-8.7690	-0.55324	9976.7	570.00	942.23
8 12.29	4.99178E-03	4.8969	-4.45154E-02	12895.	5949.1	489.89	0.90422
1.4000	7.07549E-03	980.99	-8.9174	-0.52081	10108.	570.00	981.03
9 16.16	5.60456E-03	5.6995	-3.56560E-02	14555.	5775.3	485.92	0.94510
1.4000	6.95121E-03	1016.9	-6.0051	-0.33833	10240.	570.00	1017.0
10 20.65	6.14558E-03	6.4645	3.47018E-02	16011.	5562.3	475.02	0.98087
1.4000	6.77977E-05	1051.2	5.6430	0.30756	10298.	570.00	1051.2
11 25.69	6.55965E-05	7.1820	3.15689E-02	17166.	5252.8	470.22	1.0501
1.4000	6.50876E-03	1094.9	4.8126	0.25184	10502.	570.00	1094.9
12 31.24	6.97055E-03	7.8706	-2.41919E-02	18518.	5006.1	463.88	1.0695
1.4000	6.28777E-05	1129.1	-5.4706	-0.17611	10295.	570.00	1129.1
13 37.30	7.38723E-03	8.5356	4.39397E-02	19477.	4809.9	458.79	1.1009
1.4000	6.10857E-03	1155.9	5.9345	0.29417	10281.	570.00	1155.9
14 45.84	7.74748E-03	9.1916	1.64445E-02	20506.	4596.1	452.84	1.1574
1.4000	5.91350E-03	1186.4	2.1226	0.10251	10283.	570.00	1186.4
15 50.86	8.08703E-03	9.8290	-2.58752E-02	21485.	4397.8	447.04	1.1727
1.4000	5.73179E-03	1215.4	-3.1986	-0.15083	10294.	570.00	1215.4
16 58.33	8.37346E-03	10.401	-7.70662E-02	22214.	4158.4	440.03	1.2152
1.4000	5.50611E-03	1249.5	-9.2613	-0.42465	10287.	570.00	1249.6
17 66.17	8.35653E-03	10.856	-0.15070	22541.	3850.5	430.84	1.2708
1.4000	5.20731E-03	1292.9	-15.565	-0.68975	10256.	570.00	1293.0
18 74.31	8.33235E-03	11.196	-2.70170E-02	22528.	3503.5	419.71	1.3580
1.4000	4.86355E-03	1345.7	-3.3138	-0.14130	10226.	570.00	1343.7
19 82.66	8.17154E-03	11.433	1.90663E-04	22270.	3147.3	407.07	1.4146
1.4000	4.50472E-03	1399.1	2.33526E-02	9.55527E-04	10224.	570.00	1399.1
20 91.19	8.14999E-03	11.684	0.27630	22327.	2913.6	398.84	1.4648
1.4000	4.25639E-03	1433.6	33.901	1.3547	10167.	570.00	1434.0
21 100.00	8.47215E-03	12.178	0.32524	23223.	2870.6	397.90	1.4706
1.4000	4.20342E-03	1437.4	38.390	1.5299	10100.	570.00	1457.9

ITERATION NO.= 300 X-STATION NO.= 21 Y-INNER = 0.0001 Y-OUTER = 2.0182 OUTPUT NO. = 2

STREAMLINE %		W1	W2	W3	W4	P-STAT	TEMP(R)	MACH NO
	CP/CV	DENSITY	U	V	FLOW ANG(O)	P-STAG	T-STAG	VELOCITY
1	0.0	6.93237E-07	6.81970E-04	0.0	1.7913	5923.5	489.45	0.90713
	1.4000	6.93237E-03	993.75	0.0	0.0	9925.9	570.00	983.75
2	0.26	6.93206E-04	0.68981	6.32568E-03	1793.5	5743.1	487.57	0.91940
	1.4000	6.86301E-03	995.10	9.1253	0.52540	9921.4	570.00	995.14
3	1.03	1.38168E-03	1.3775	7.04318E-03	3575.4	5722.7	487.26	0.92140
	1.4000	6.84298E-03	996.98	5.0975	0.29295	9908.1	570.00	997.00
4	2.30	2.06112E-03	2.0624	1.03542E-02	5335.8	5685.1	486.66	0.92534
	1.4000	6.80448E-03	1000.6	5.0234	0.28745	9885.9	570.00	1000.6
5	4.09	2.72426E-03	2.7434	1.97523E-02	7057.5	5623.7	485.59	0.93230
	1.4000	6.74783E-03	1007.0	7.2505	0.41252	9854.9	570.00	1007.1
6	6.39	3.36960E-03	3.4465	4.87034E-02	8744.8	5534.3	482.90	0.94962
	1.4000	6.67737E-03	1022.8	14.454	0.80961	9887.9	570.00	1022.9
7	9.23	3.98528E-03	4.1838	0.11905	10375.	5401.6	478.20	0.97971
	1.4000	6.58141E-03	1049.8	27.613	1.5067	9987.2	570.00	1050.2
8	12.63	4.51946E-03	4.9458	0.12470	11827.	5163.4	473.26	1.0298
	1.4000	6.39749E-03	1094.3	27.591	1.4443	10123.	570.00	1094.7
9	16.59	5.05087E-03	5.7034	0.10440	13273.	4980.4	463.83	1.0698
	1.4000	6.25613E-03	1129.2	20.709	1.0506	10246.	570.00	1129.4
10	21.10	5.57541E-03	6.4247	0.18126	14694.	4840.9	459.39	1.0972
	1.4000	6.13860E-03	1152.3	32.511	1.6161	10299.	570.00	1152.8
11	26.13	6.04954E-03	7.1080	0.19899	15990.	4681.3	455.00	1.1242
	1.4000	5.99464E-03	1175.0	32.893	1.6035	10301.	570.00	1175.4
12	31.66	6.48720E-03	7.7712	0.14030	17196.	4518.7	450.52	1.1516
	1.4000	5.84399E-03	1197.9	21.628	1.0343	10294.	570.00	1198.1
13	37.68	6.89922E-03	8.4118	0.20234	18340.	4363.0	446.19	1.1779
	1.4000	5.69726E-03	1219.2	29.327	1.3779	10280.	570.00	1219.6
14	44.18	7.29106E-03	9.0490	0.19279	19437.	4213.6	441.73	1.2049
	1.4000	5.55773E-03	1241.1	26.442	1.2705	10284.	570.00	1241.4
15	51.13	7.62296E-03	9.6568	0.19468	20392.	4041.1	436.37	1.2374
	1.4000	5.39571E-03	1266.8	25.538	1.1549	10293.	570.00	1267.1
16	58.52	7.86024E-03	10.198	0.21418	21115.	3830.9	429.84	1.2768
	1.4000	5.19278E-03	1297.4	27.249	1.2032	10287.	570.00	1297.6
17	66.26	7.96873E-03	10.634	0.22067	21518.	3572.1	421.70	1.3260
	1.4000	4.93544E-03	1334.5	27.692	1.1888	10236.	570.00	1334.8
18	74.31	8.00337E-03	10.592	0.34119	21726.	3303.5	412.72	1.3803
	1.4000	4.66358E-03	1373.9	42.646	1.7779	10226.	570.00	1374.6
19	82.60	7.99147E-03	11.307	0.30410	21832.	3044.9	403.24	1.4379
	1.4000	4.39960E-03	1414.9	38.053	1.5405	10225.	570.00	1415.4
20	91.14	8.10905E-03	11.655	0.42448	22229.	2887.7	397.82	1.4711
	1.4000	4.22978E-03	1437.3	52.346	2.0858	10168.	570.00	1438.3
21	100.00	8.45490E-03	12.172	0.32509	23184.	2857.1	397.36	1.4739
	1.4000	4.18929E-03	1439.7	38.449	1.5299	10100.	570.00	1440.2

ITERATION NO.= 300 X-STATION NO.= 22 Y-INNER = 0.0001 Y-OUTER = 2.0209 OUTPUT NO. = 2

STREAMLINE	%	W1	W2	W3	W4	P-STAT	TEMP(R)	MACH NO
	CP/CV	DENSITY	U	V	FLOW ANG(D)	P-STAG	T-STAG	VELOCITY
1	0.0	6.10535E-07	6.85078E-04	0.0	1.6030	4874.6	465.20	1.0612
	1.4000	6.10534E-03	1122.1	0.0	0.0	9925.9	570.00	1122.1
2	0.26	6.22709E-06	0.69318	6.56627E-03	1633.2	4933.3	466.85	1.0511
	1.4000	6.15690E-03	1113.2	10.561	0.54256	9921.6	570.00	1113.2
3	1.03	1.24316E-03	1.3838	1.05813E-02	3260.5	4926.8	466.86	1.0510
	1.4000	6.14877E-03	1113.1	8.5117	0.43810	9908.0	570.00	1113.2
4	2.32	1.85607E-03	2.0702	2.02483E-02	4969.3	4900.3	466.46	1.0536
	1.4000	6.12119E-03	1115.4	10.909	0.56038	9885.6	570.00	1115.6
5	4.12	2.45676E-03	2.7501	3.82550E-02	6468.4	4857.2	465.68	1.0583
	1.4000	6.07717E-03	1119.4	15.490	0.79280	9854.4	570.00	1119.5
6	6.43	3.04822E-03	3.4447	7.13394E-02	8011.5	4800.5	463.65	1.0709
	1.4000	6.03265E-03	1130.1	23.404	1.1864	9889.2	570.00	1130.3
7	9.27	3.64683E-03	4.1652	0.15295	9595.2	4757.7	461.15	1.0866
	1.4000	6.01119E-03	1142.8	41.962	2.1029	9988.6	570.00	1143.6
8	12.66	4.22351E-03	4.9075	0.19140	11139.	4682.8	457.30	1.1101
	1.4000	5.96668E-03	1162.7	45.349	2.2335	10125.	570.00	1163.6
9	16.59	4.77178E-03	5.6508	0.17539	12627.	4590.8	453.16	1.1356
	1.4000	5.90261E-03	1184.2	36.738	1.7769	10266.	570.00	1184.8
10	21.08	5.29864E-03	6.3601	0.24858	14051.	4498.4	449.88	1.1554
	1.4000	5.82591E-03	1200.4	46.915	2.2382	10298.	570.00	1201.3
11	26.08	5.81433E-03	7.0469	0.28800	15442.	4420.3	447.60	1.1693
	1.4000	5.75393E-03	1211.6	69.533	2.3410	10301.	570.00	1212.7
12	31.58	6.27284E-03	7.7055	0.25847	16695.	4303.0	444.26	1.1896
	1.4000	5.66339E-03	1228.6	61.205	1.9212	10296.	570.00	1229.1
13	37.57	6.68859E-03	8.3377	0.33052	17546.	4169.9	440.66	1.2127
	1.4000	5.51601E-03	1244.5	49.416	2.2701	10281.	570.00	1247.5
14	44.02	7.07899E-03	8.9646	0.34509	18937.	4035.5	436.32	1.2377
	1.4000	5.38893E-03	1266.4	48.768	2.2045	10286.	570.00	1267.3
15	50.93	7.40617E-03	9.5573	0.39965	19874.	3872.4	431.09	1.2693
	1.4000	5.23387E-03	1290.8	52.464	2.3275	10294.	570.00	1291.9
16	58.20	7.65467E-03	10.090	0.45712	20625.	3684.5	425.08	1.3056
	1.4000	5.05026E-03	1318.2	59.717	2.5939	10287.	570.00	1319.5
17	65.96	7.81616E-03	10.546	0.49408	21152.	3470.1	418.21	1.3472
	1.4000	4.83451E-03	1349.0	63.212	2.6829	10257.	570.00	1350.6
18	73.98	7.95122E-03	10.956	0.61647	21610.	3269.0	411.48	1.3879
	1.4000	4.62878E-03	1377.8	77.531	3.2206	10227.	570.00	1380.0
19	82.31	8.08760E-03	11.376	0.52586	22071.	3090.6	406.95	1.4275
	1.4000	4.44651E-03	1404.7	65.036	2.6471	10225.	570.00	1408.2
20	90.97	8.32349E-03	11.822	0.52422	22760.	2989.5	401.76	1.4470
	1.4000	4.33547E-03	1420.3	62.981	2.5390	10169.	570.00	1421.7
21	100.00	8.73862E-03	12.395	0.33103	23886.	2980.6	402.45	1.4429
	1.4000	4.32412E-03	1418.4	37.881	1.5299	10160.	570.00	1418.9

ITERATION NO.= 300 X-STATION NO.= 25 Y-INNER = 0.0001 Y-OUTER = 2.0256 OUTPUT NO. = 2

STREAMLINE #	W3	W2	W3	W4	P-STAT	TEMP(R)	MACH NO
CP/CV	DENSITY	U	V	FLOW ANG(D)	P-STAG	T-STAG	VELOCITY
1 0.0	5.80644E-07	6.75678E-04	0.0	3.5538	4543.8	455.95	1.1183
1.4000	5.80644E-03	1170.6	0.0	0.0	9925.9	570.00	1170.6
2 0.26	5.89494E-04	0.68816	6.54145E-03	1554.5	4549.6	456.37	1.3170
1.4000	5.81C91E-03	1169.4	11.114	0.54462	9921.4	570.00	1169.4
3 3.03	1.17529E-03	1.3739	1.34683E-02	3105.9	4545.9	456.24	3.3163
1.4000	5.80558E-03	1169.0	11.429	0.56364	9908.0	570.00	1169.0
4 2.51	1.75477E-03	2.0549	2.82632E-02	4655.5	4521.6	455.84	1.3190
1.4000	5.77945E-03	1173.0	16.307	0.78801	9885.8	370.00	1371.1
5 4.10	2.52596E-03	2.7288	3.22311E-02	6141.7	4485.2	455.20	1.1230
1.4000	5.74106E-03	1174.2	22.484	3.0970	9834.8	570.00	1174.4
6 6.39	2.58519E-03	3.4143	8.22797E-02	7634.0	4436.9	453.36	1.1342
1.4000	5.7C229E-03	3183.4	28.318	1.38C4	9887.8	370.00	1183.8
7 9.21	3.45928E-03	4.3261	0.15585	9164.3	4414.3	451.41	1.3461
1.4000	3.69763E-03	1192.8	45.052	2.3631	9986.4	570.00	1193.6
8 12.57	4.04892E-03	4.8647	0.20999	10735.	4407.8	449.50	1.1377
1.4000	5.71542E-05	1202.1	51.889	2.4737	30121.	570.00	1203.2
9 16.48	4.6C31CE-03	5.6033	0.23569	12234.	4357.3	446.48	3.3761
3.4000	5.68642E-03	1217.3	46.858	2.2045	30244.	570.00	1218.2
30 2C.93	5.12943E-03	6.5077	0.28993	13653.	4289.6	443.82	1.1923
1.4000	5.63149E-03	3230.0	56.533	2.6317	10298.	570.00	1251.2
11 25.90	5.64715E-03	6.9896	0.34797	15050.	4255.4	442.17	1.2023
3.4000	5.58106E-03	1237.7	61.619	2.8500	10301.	570.00	1239.3
12 31.37	6.11180E-03	7.6470	0.55254	16318.	4141.4	439.42	1.2189
1.4000	5.49122E-03	1251.2	57.682	2.4596	10295.	570.80	1252.5
13 37.33	6.52992E-03	8.2731	C.44318	17472.	4024.3	436.01	1.2396
1.4000	3.37802E-03	1267.0	67.869	3.0663	1C283.	370.00	1268.8
14 43.73	6.93788E-03	8.8912	0.48416	19557.	5900.4	432.10	3.2632
1.4000	3.25931E-03	1285.2	69.987	3.1169	10283.	570.00	1287.1
15 50.59	7.24626E-03	9.4764	0.55833	19499.	3750.3	427.35	1.2933
1.4000	5.31549E-03	1307.8	77.050	3.3718	10294.	570.00	1310.0
16 57.87	7.52591E-05	10.015	0.65473	20518.	3593.3	421.97	1.3244
1.4000	4.95873E-33	1330.7	86.996	3.7404	10287.	570.00	1333.6
17 65.34	7.75650E-03	10.5038	0.69849	21012.	3426.5	416.67	1.5564
1.4000	4.79145E-05	1334.2	90.048	3.9042	10260.	570.00	1357.2
18 75.57	8.00524E-05	10.987	0.81063	21744.	3493.9	412.37	1.3823
1.4000	4.65405E-03	1372.4	131.26	4.2198	10220.	570.00	1376.2
19 81.97	8.28515E-03	11.515	0.68110	22557.	3190.7	408.66	3.4050
1.4000	4.5492CE-03	1389.8	82.207	3.3850	10226.	570.00	1392.3
20 90.78	8.62681E-05	12.046	0.59457	23508.	3157.1	407.31	1.4332
1.4000	4.48751E-03	1396.4	68.897	2.8247	10171.	570.00	1398.1
21 100.00	9.06819E-03	32.658	0.53753	24496.	3139.7	408.22	1.4077
1.4000	4.48126E-03	1395.7	37.223	3.5299	10100.	570.00	3594.2

ITERATION NO.= 300 X-STATION NO.= 24 Y-INNER = 0.0001 Y-OUTER = 2.0263 OUTPUT NO. = 2

STREAMLINE	% / CP/CV	W1 / DENSITY	W2 / U	W3 / V	W4 / FLOW ANG(D)	P-STAT / P-STAG	TEMP(R) / T-STAG	MACH NO / VELOCITY
1	0.0	5.56609E-07	6.73023E-04	0.0	1.4775	4282.6	448.30	1.1650
	1.4000	5.56630E-03	1209.2	0.0	0.0	9925.9	570.00	1209.2
2	0.26	5.64619E-04	0.68230	6.60002E-03	1498.7	4285.3	448.44	1.1642
	1.4000	5.56777E-03	1208.4	11.689	0.55421	9921.5	570.00	1208.5
3	1.02	1.12758E-03	1.3622	1.58695E-02	2992.9	4291.7	448.50	1.1638
	1.4000	5.56233E-03	1208.1	14.074	0.66746	9908.2	570.00	1208.2
4	2.29	1.68429E-03	2.0373	3.40491E-02	4471.5	4261.4	449.18	1.1658
	1.4000	5.53996E-03	1209.6	20.216	0.95748	9886.1	570.00	1209.8
5	4.07	2.23394E-03	2.7059	6.29163E-02	5932.1	4235.9	447.81	1.1680
	1.4000	5.51135E-03	1211.3	26.164	1.3320	9855.3	570.00	1211.6
6	6.35	2.77700E-03	3.3845	9.07796E-02	7381.5	4198.2	446.27	1.1774
	1.4000	5.48117E-03	1218.8	32.690	1.5164	9886.2	570.00	1219.2
7	9.14	3.32994E-03	4.0078	0.15262	8862.0	4177.6	444.39	1.1888
	1.4000	5.47731E-03	1227.6	45.833	2.1382	9984.0	570.00	1228.4
8	12.47	3.90117E-03	4.8181	0.21370	10393.	4150.0	442.79	1.1985
	1.4000	5.50034E-03	1235.0	54.779	2.5396	10117.	570.00	1236.3
9	16.35	4.44935E-03	5.5499	0.23926	11873.	4147.7	440.25	1.2139
	1.4000	5.48917E-03	1247.4	53.774	2.4685	10242.	570.00	1248.5
10	20.76	4.96778E-03	6.2486	0.31685	13276.	4095.1	437.97	1.2277
	1.4000	5.44786E-03	1257.8	63.781	2.9028	10298.	570.00	1259.4
11	25.69	5.47766E-03	6.9241	0.39092	14651.	4051.0	436.58	1.2361
	1.4000	5.40619E-03	1264.1	71.366	3.2314	10302.	570.00	1266.1
12	31.17	5.54036E-03	7.5756	0.42573	15913.	3972.2	434.21	1.2505
	1.4000	5.33011E-03	1275.3	71.667	3.2165	10296.	570.00	1277.3
13	37.02	6.35117E-03	8.1961	0.53514	17073.	3872.4	431.23	1.2685
	1.4000	5.23208E-03	1288.5	84.126	3.7356	10281.	570.00	1291.2
14	43.38	6.75468E-03	8.8091	0.59980	18169.	3765.2	427.78	1.2893
	1.4000	5.12841E-03	1304.1	88.798	3.8952	10282.	570.00	1307.2
15	50.19	7.10189E-03	9.3965	0.69272	19155.	3639.3	423.50	1.3192
	1.4000	5.00691E-03	1323.1	97.540	4.2165	10294.	570.00	1326.7
16	57.43	7.42786E-03	9.9547	0.79956	20085.	3519.4	419.54	1.3191
	1.4000	4.88763E-03	1340.2	107.64	4.5921	10288.	570.00	1344.5
17	65.08	7.74005E-03	10.493	0.83260	20975.	3409.5	416.05	1.3602
	1.4000	4.77476E-03	1355.7	107.57	4.5366	10262.	570.00	1360.0
18	73.14	8.10218E-03	11.049	0.92480	21983.	3343.5	414.12	1.3719
	1.4000	4.70416E-03	1363.7	114.14	4.7845	10228.	570.00	1368.5
19	81.64	8.51334E-03	11.671	0.77059	23117.	3309.2	412.89	1.3793
	1.4000	4.66829E-03	1370.9	90.515	3.7776	10226.	570.00	1373.9
20	90.59	8.94761E-03	12.270	0.63982	24294.	3295.3	413.06	1.3783
	1.4000	4.64820E-03	1371.3	71.508	2.9851	10172.	570.00	1373.1
21	100.00	9.40581E-03	12.872	0.34377	25522.	3298.6	414.01	1.3726
	1.4000	4.64193E-03	1368.5	36.549	1.5299	10100.	570.00	1369.0

ITERATION NO.= 300   X-STATION NO.= 25   Y-INNER = 0.0001   Y-OUTER = 2.0289   OUTPUT NO. = 2

STREAMLINE	% / CP/CV	W1 / DENSITY	W2 / U	W3 / V	W4 / FLOW ANG(D)	P-STAT / P-STAG	TEMP(F) / T-STAG	MACH NO / VELOCITY
1	0.0	5.35879E-07	6.65700E-04	0.0	1.4288	4061.1	441.35	1.2060
	1.4000	3.35879E-03	1242.3	0.0	0.0	9923.9	370.00	1242.3
2	0.23	5.44162E-04	0.67574	6.60938E-03	1450.8	4062.0	441.63	1.2033
	1.4000	5.35890E-03	1241.8	12.146	0.56039	9921.5	370.00	1241.9
3	1.01	1.08693E-03	1.3492	1.74762E-02	2897.6	4059.6	441.73	1.2050
	1.4000	5.35471E-03	1241.3	16.079	0.74212	9908.3	370.00	1241.4
4	2.27	1.62477E-03	2.0181	3.71546E-02	4332.0	4044.3	441.54	1.2061
	1.4000	5.33712E-03	1242.1	22.868	1.0547	9886.4	370.00	1242.3
5	4.03	2.15868E-03	2.6816	6.91563E-02	5755.7	4029.9	441.47	1.2065
	1.4000	5.31565E-03	1242.2	32.036	1.4773	9853.9	370.00	1242.6
6	6.29	2.68810E-03	3.3541	9.73346E-02	7172.7	4004.2	440.30	1.2136
	1.4000	5.29870E-03	1247.8	36.209	1.6622	9884.4	370.00	1248.3
7	9.07	3.22241E-03	4.0489	0.15075	8608.9	3983.0	439.41	1.2251
	1.4000	5.29344E-03	1256.3	46.781	2.1322	9981.5	370.00	1257.4
8	12.37	3.77176E-03	4.7684	0.21468	10288.	3980.5	436.75	1.2334
	1.4000	5.31086E-03	1264.2	36.919	2.3779	10113.	370.00	1265.5
9	16.21	4.30511E-03	5.4912	0.23473	11532.	3933.6	434.29	1.2500
	1.4000	5.30422E-03	1275.5	59.169	2.6560	10240.	370.00	1276.9
10	20.35	4.81203E-03	6.1824	0.33579	12907.	3909.5	432.20	1.2626
	1.4000	5.27309E-03	1284.8	69.782	3.1099	10298.	370.00	1286.7
11	23.47	5.30883E-03	6.8493	0.42264	14251.	3870.1	430.92	1.2704
	1.4000	5.23283E-03	1290.2	79.611	3.5309	10302.	370.00	1292.7
12	30.84	5.76646E-03	7.4943	0.48051	15501.	3803.3	428.84	1.2829
	1.4000	5.16741E-03	1299.6	83.326	3.6686	10296.	370.00	1302.3
13	36.69	6.19192E-03	8.1114	0.60372	16670.	3721.9	426.37	1.2978
	1.4000	5.08615E-03	1310.0	97.501	4.2566	10282.	370.00	1313.6
14	43.00	6.59963E-03	8.7255	0.68525	17799.	3638.2	423.61	1.3149
	1.4000	5.00409E-03	1322.1	103.83	4.4905	10282.	370.00	1326.2
15	49.76	6.97541E-03	9.3236	0.78553	18862.	3549.2	420.34	1.3342
	1.4000	4.91406E-03	1336.2	112.55	4.8150	10294.	370.00	1340.9
16	56.97	7.36441E-03	9.9162	0.89026	19934.	3470.9	417.67	1.3492
	1.4000	4.83948E-03	1346.5	120.89	3.1302	10288.	370.00	1331.9
17	64.62	7.76258E-03	10.311	0.90142	21033.	3416.8	416.28	1.3588
	1.4000	4.78233E-03	1354.0	116.12	4.9019	10764.	370.00	1359.0
18	72.73	8.22760E-03	11.133	0.96711	22291.	3409.8	416.44	1.3578
	1.4000	4.77047E-03	1353.2	117.54	4.9647	10229.	370.00	1358.3
19	81.33	8.74544E-03	11.825	0.79928	23684.	3428.7	417.13	1.3337
	1.4000	4.78923E-03	1352.1	91.394	3.8668	10227.	370.00	1353.2
20	90.43	9.25476E-03	12.471	0.66091	25042.	3448.1	418.43	1.3458
	1.4000	4.80142E-03	1347.6	71.413	3.0335	10173.	370.00	1349.4
21	100.00	9.77869E-03	13.081	0.34936	26308.	3451.6	419.42	1.3398
	1.4000	4.79494E-03	1344.6	35.910	1.5299	10100.	370.00	1345.0

ITERATION NO.= 300 X-STATION NO.= 26 Y-INNER = 0.0001 Y-OUTER = 2.0316 OUTPUT NO. = 2

	STREAMLINE % CP/CV	W1 DENSITY	W2 U	W3 V	W4 FLOW ANG(D)	P-STAT P-STAG	TEMP(R) T-STAG	MACH NO VELOCITY
1	0.0	5.17741E-07	6.58115E-04	0.0	1.3858	3870.0	435.51	1.2426
	1.4000	5.17740E-03	1271.1	0.0	0.0	9925.9	570.00	1271.1
2	0.25	5.26320E-04	0.66888	6.48901E-03	1408.7	3869.6	435.55	1.2423
	1.4000	5.17642E-03	1270.9	12.329	0.55583	9921.5	570.00	1270.9
3	1.00	1.05163E-03	1.3357	1.83689E-02	2814.4	3869.1	435.70	1.2414
	1.4000	5.17400E-03	1270.1	17.467	0.78791	9908.5	570.00	1270.2
4	2.25	1.57306E-03	1.9983	3.83110E-02	4210.1	3858.3	435.63	1.2419
	1.4000	5.16047E-03	1270.3	24.354	1.0983	9886.8	570.00	1270.6
5	4.00	2.09254E-03	2.6563	7.19774E-02	5599.8	3850.9	435.77	1.2410
	1.4000	5.14808E-03	1269.4	34.397	1.5521	9856.5	570.00	1269.9
6	6.24	2.60937E-03	3.3228	0.10228	6986.8	3834.1	434.90	1.2463
	1.4000	5.13673E-03	1273.4	39.199	1.7631	9882.6	570.00	1274.0
7	8.99	3.12713E-03	4.0092	0.15141	8383.4	3812.5	432.99	1.2578
	1.4000	5.13014E-03	1282.1	48.419	2.1628	9978.8	570.00	1283.0
8	12.27	3.65507E-03	4.7169	0.21697	9810.7	3802.8	431.09	1.2693
	1.4000	5.13376E-03	1290.5	59.361	2.6337	10108.	570.00	1291.9
9	16.07	4.17136E-03	5.4292	0.26708	11214.	3776.1	428.65	1.2840
	1.4000	5.13264E-03	1301.6	64.027	2.8163	10238.	570.00	1303.1
10	20.40	4.66464E-03	6.1118	0.35045	12556.	3735.8	426.63	1.2962
	1.4000	5.10193E-03	1310.3	75.129	3.2817	10298.	570.00	1312.4
11	25.23	5.14910E-03	6.7702	0.44611	13868.	3700.2	425.42	1.3035
	1.4000	5.05771E-03	1315.1	86.656	3.7699	10302.	570.00	1317.9
12	30.55	5.60176E-03	7.4095	0.51903	15107.	3645.1	423.66	1.3142
	1.4000	5.01303E-03	1322.7	92.655	4.0069	10297.	570.00	1326.0
13	36.34	6.03469E-03	8.0270	0.64857	16294.	3583.6	421.77	1.3256
	1.4000	4.95346E-03	1330.1	107.47	4.6194	10283.	570.00	1334.5
14	42.60	6.46409E-03	8.6491	0.73818	17475.	3527.6	419.90	1.3369
	1.4000	4.89483E-03	1338.0	114.20	4.8782	10281.	570.00	1342.9
15	49.32	6.88618E-03	9.2718	0.83530	18640.	3472.7	417.88	1.3491
	1.4000	4.84202E-03	1346.4	121.30	5.1479	10293.	570.00	1351.9
16	56.51	7.33708E-03	9.9033	0.92870	19871.	3446.4	417.02	1.3543
	1.4000	4.81516E-03	1349.8	126.58	5.3574	10289.	570.00	1355.7
17	64.15	7.81873E-03	10.553	0.91235	21173.	3444.8	417.23	1.3531
	1.4000	4.81057E-03	1349.7	116.69	4.9410	10266.	570.00	1354.8
18	72.36	8.36853E-03	11.230	0.94990	22635.	3485.3	419.05	1.3421
	1.4000	4.84598E-03	1341.9	113.51	4.8351	10230.	570.00	1346.7
19	81.06	8.96189E-03	11.965	0.77736	24210.	3541.5	421.00	1.3303
	1.4000	4.90129E-03	1335.2	86.741	3.7171	10228.	570.00	1338.0
20	90.29	9.52452E-03	12.639	0.55994	25697.	3592.9	423.02	1.3180
	1.4000	4.93485E-03	1327.0	69.288	2.9889	10175.	570.00	1328.8
21	100.00	1.00121E-02	13.254	0.35397	26995.	3586.6	424.04	1.3119
	1.4000	4.92812E-03	1323.8	35.355	1.3299	10100.	570.00	1324.2

ITERATION NO.= 300   X-STATION NO.= 27   Y-INNER = 0.0001   Y-OUTER = 2.0343   OUTPUT NO. = 2

	STREAMLINE % / CP/CV	W1 / DENSITY	W2 / U	W3 / V	W4 / FLOW ANG(D)	P-STAT / P-STAG	TEMP(R) / T-STAG	MACH NO / VELOCITY
1	0.0	5.01559E-07	6.50444E-04	0.0	1.3472	3701.7	430.01	1.2758
	1.4000	5.01559E-03	1296.8	0.0	0.0	9925.9	570.00	1296.8
2	0.25	5.10468E-04	0.66193	6.23231E-03	1371.1	3700.6	430.03	1.2757
	1.4000	5.01391E-03	1296.7	12.209	0.53945	9921.6	570.00	1296.8
3	0.99	1.02030E-03	1.3220	1.87694E-02	2740.1	3701.8	430.23	1.2765
	1.4000	5.01323E-03	1295.7	18.396	0.81341	9908.6	570.00	1295.8
4	2.23	1.52688E-03	1.9782	3.84304E-02	4100.6	3693.8	430.23	1.2765
	1.4000	5.00237E-03	1295.6	25.169	1.1129	9887.1	570.00	1295.8
5	3.96	2.02223E-03	2.6302	7.28941E-02	5457.0	3689.5	430.47	1.2731
	1.4000	4.99390E-03	1294.3	35.825	1.5855	9857.1	570.00	1294.8
6	6.19	2.53623E-03	3.2901	0.10606	6813.3	3678.0	429.79	1.2772
	1.4000	4.98617E-03	1297.2	41.810	1.8464	9880.7	570.00	1297.9
7	8.91	3.03883E-03	3.9678	0.15395	8173.4	3656.3	427.88	1.2887
	1.4000	4.97873E-03	1305.7	50.660	2.2219	9976.1	570.00	1306.7
8	12.16	3.54765E-03	4.6638	0.22093	9554.4	3641.2	425.83	1.3011
	1.4000	4.98214E-03	1314.6	62.275	2.7121	10104.	570.00	1316.1
9	15.92	4.04764E-03	5.3657	0.27807	10918.	3613.9	423.34	1.3161
	1.4000	4.97385E-03	1325.6	68.700	2.9667	10236.	570.00	1327.4
10	20.21	4.52795E-03	6.0398	0.36205	12229.	3576.9	421.37	1.3280
	1.4000	4.94590E-03	1333.9	79.959	3.4305	10298.	570.00	1336.3
11	24.99	5.00051E-03	6.6907	0.46229	13515.	3546.0	420.28	1.3346
	1.4000	4.91594E-03	1338.0	92.448	3.9525	10302.	570.00	1341.2
12	30.25	5.45327E-03	7.3275	0.54250	14751.	3504.0	418.90	1.3430
	1.4000	4.87371E-03	1343.7	99.481	4.2342	10298.	570.00	1347.4
13	35.99	5.89832E-03	7.9503	0.67049	15967.	3464.2	417.70	1.3502
	1.4000	4.83221E-03	1347.9	113.67	4.8206	10283.	570.00	1352.7
14	42.20	6.35564E-03	8.5875	0.75899	17215.	3438.7	416.86	1.3553
	1.4000	4.80638E-03	1351.2	119.42	5.0508	10280.	570.00	1356.4
15	48.90	6.82569E-03	9.2399	0.84348	18496.	3423.9	416.20	1.3593
	1.4000	4.79317E-03	1353.7	123.57	5.2158	10292.	570.00	1359.3
16	56.10	7.34289E-03	9.9152	0.91881	19888.	3443.8	416.93	1.3549
	1.4000	4.81262E-03	1350.3	125.13	5.2943	10289.	570.00	1356.1
17	63.81	7.89420E-03	10.614	0.87420	21368.	3487.2	415.67	1.3444
	1.4000	4.85306E-03	1343.8	110.68	4.7085	10268.	570.00	1348.4
18	72.05	8.50995E-03	11.327	0.88813	22980.	3561.4	421.64	1.3264
	1.4000	4.92138E-03	1331.0	104.36	4.4834	10230.	570.00	1335.1
19	80.84	9.14686E-03	12.084	0.71962	24659.	3637.4	424.22	1.3108
	1.4000	4.95586E-03	1321.1	78.674	3.4081	10228.	570.00	1323.4
20	90.18	9.74031E-03	12.769	0.64197	26220.	3690.1	426.59	1.2965
	1.4000	5.04001E-03	1311.0	65.908	2.8781	10176.	570.00	1312.6
21	100.00	1.02384E-02	13.386	0.35750	27542.	3693.7	427.62	1.2903
	1.4000	5.03284E-03	1307.4	34.918	1.5299	10100.	570.00	1307.9

ITERATION NO.= 330 X-STATION NO.= 28 Y-INNER = 0.0001 Y-OUTER = 2.0370 OUTPUT NO. = 2

	STREAMLINE %	W1	W2	W3	W4	P-STAT	TEMP(F)	MACH NO
	CP/CV	DENSITY	U	V	FLOW ANG(D)	P-STAG	T-STAG	VELOCITY
1	0.0	4.86843E-07	6.42740E-04	0.0	1.3119	3550.5	424.92	1.3066
	1.4000	4.86841E-03	1320.2	0.0	0.0	9925.9	570.00	1320.2
2	0.25	4.96102E-04	0.65493	5.87877E-03	1336.9	3549.1	424.92	1.3065
	1.4000	4.86639E-03	1320.2	11.850	0.51428	9921.6	570.00	1320.2
3	0.98	9.91819E-04	1.3082	1.89317E-02	2672.3	3551.4	425.16	1.3051
	1.4000	4.86689E-03	1319.0	19.058	0.82779	9908.8	570.00	1319.1
4	2.21	1.48457E-03	1.9577	3.82419E-02	3999.8	3544.7	425.19	1.3049
	1.4000	4.85735E-03	1318.7	25.760	1.1191	9887.5	570.00	1319.0
5	3.93	1.97595E-03	2.6032	7.27824E-02	5322.9	3540.7	425.42	1.3035
	1.4000	4.84922E-03	1317.4	36.834	1.6015	9857.7	570.00	1317.9
6	6.13	2.46673E-03	3.2556	0.10908	6647.5	3531.5	424.85	1.3070
	1.4000	4.84316E-03	1319.8	44.222	1.9191	9878.7	570.00	1320.6
7	8.83	2.95526E-03	3.9247	0.15737	7973.6	3510.2	422.96	1.3184
	1.4000	4.83544E-03	1328.0	53.250	2.2961	9973.3	570.00	1329.1
8	12.04	3.44764E-03	4.6057	0.22561	9314.6	3492.5	420.84	1.3312
	1.4000	4.83533E-03	1337.1	65.438	2.8019	10099.	570.00	1338.7
9	15.77	3.93377E-03	5.3020	0.28755	10645.	3466.3	418.35	1.3463
	1.4000	4.82757E-03	1347.8	73.399	3.1044	10234.	570.00	1349.8
10	20.01	4.40387E-03	5.9691	0.37323	11931.	3434.1	416.50	1.3575
	1.4000	4.80405E-03	1355.4	84.069	3.5492	10297.	570.00	1358.0
11	24.74	4.86980E-03	6.6151	0.47080	13209.	3410.6	415.63	1.3627
	1.4000	4.78114E-03	1358.4	96.678	4.0709	10102.	570.00	1361.8
12	29.96	5.32657E-03	7.2538	0.55147	14447.	3384.2	414.75	1.3681
	1.4000	4.75422E-03	1361.8	103.53	4.3476	10299.	570.00	1365.7
13	35.65	5.78895E-03	7.8876	0.67049	15795.	3368.3	414.36	1.3704
	1.4000	4.73637E-03	1362.5	115.82	4.8588	10284.	570.00	1367.4
14	41.83	6.27902E-03	8.5458	0.74950	17031.	3374.7	414.63	1.3688
	1.4000	4.74218E-03	1361.0	119.37	5.0122	10280.	570.00	1366.2
15	48.52	6.79838E-03	9.2317	0.81367	18432.	3398.5	415.33	1.3646
	1.4000	4.76771E-03	1357.9	119.69	5.0370	10292.	570.00	1363.2
16	55.73	7.37548E-03	9.9473	0.86696	19970.	3458.8	417.44	1.3518
	1.4000	4.82762E-03	1348.7	117.55	4.9810	10289.	570.00	1353.8
17	63.49	7.98783E-03	10.682	0.79788	21588.	3536.0	420.32	1.3344
	1.4000	4.90168E-03	1337.3	99.887	4.2717	10270.	570.00	1341.0
18	71.80	8.62673E-03	11.414	0.79318	21789.	3629.1	423.91	1.3127
	1.4000	4.98813E-03	1321.6	92.417	4.0001	10231.	570.00	1324.8
19	80.68	9.28935E-03	12.175	0.64241	25005.	3710.1	426.62	1.2963
	1.4000	5.06701E-03	1310.6	69.156	3.0204	10228.	570.00	1312.5
20	90.09	9.89452E-03	12.862	0.61345	26593.	3765.1	429.04	1.2817
	1.4000	5.11307E-03	1299.9	61.999	2.7307	10176.	570.00	1301.3
21	100.00	1.03996E-02	13.479	0.35999	27932.	3768.5	430.07	1.2755
	1.4000	5.10537E-03	1296.1	34.616	1.5299	10100.	570.00	1296.6

ITERATION NO.= 300   X-STATION NO.= 29   Y-INNER = 0.0001   Y-OUTER = 2.0397   OUTPUT NO. = 2

STREAMLINE %	W1	W2	W3	W4	P-STAT	TEMP(R)	MACH NO
CP/CV	DENSITY	U	V	FLOW ANG(D)	P-STAG	T-STAG	VELOCITY
1 0.0	4.73212E-07	6.34993E-04	0.0	1.2791	3412.1	420.12	1.3356
1.4000	4.73212E-03	1341.9	0.0	0.0	9925.9	570.00	1341.9
2 0.24	4.82823E-04	0.64788	5.49095E-03	1305.1	3410.5	420.12	1.3356
1.4000	4.72992E-03	1341.9	11.373	0.48558	9921.6	570.00	1341.9
3 0.98	9.65372E-04	1.2942	1.89316E-02	2609.0	3413.2	420.37	1.3341
1.4000	4.73090E-03	1340.6	19.611	0.83805	9900.9	570.00	1340.8
4 2.19	1.44504E-03	1.9369	3.81507E-02	3905.2	3406.9	420.40	1.3339
1.4000	4.72179E-03	1340.4	26.401	1.1284	9887.8	570.00	1340.6
5 3.89	1.92279E-03	2.5752	7.26135E-02	5195.7	3401.7	420.57	1.3328
1.4000	4.71255E-03	1339.3	37.765	1.6151	9858.4	570.00	1339.9
6 6.07	2.40037E-03	3.2198	0.11157	6488.4	3393.2	420.05	1.3360
1.4000	4.70668E-03	1341.4	46.480	1.9845	9876.7	570.00	1342.2
7 8.75	2.87593E-03	3.8833	0.16072	7782.9	3373.2	418.21	1.3471
1.4000	4.69945E-03	1349.2	55.884	2.3718	9970.3	570.00	1350.4
8 11.93	3.35464E-03	4.5554	0.22965	9090.5	3355.8	416.12	1.3597
1.4000	4.69877E-03	1357.9	68.458	2.8860	10094.	570.00	1359.7
9 15.61	3.83015E-03	5.2399	0.29425	10395.	3333.3	413.73	1.3743
1.4000	4.69423E-03	1368.1	76.826	3.2142	10231.	570.00	1370.2
10 19.81	4.29408E-03	5.9018	0.37375	11666.	3309.1	412.16	1.3839
1.4000	4.67812E-03	1374.4	87.038	3.6236	10295.	570.00	1377.1
11 24.50	4.75880E-03	6.5478	0.47087	12932.	3296.2	411.60	1.3871
1.4000	4.66502E-03	1375.9	98.948	4.1132	10302.	570.00	1379.5
12 29.67	5.22539E-03	7.1933	0.54586	14203.	3288.4	411.36	1.3886
1.4000	4.65778E-03	1376.6	104.46	4.3396	10259.	570.00	1380.6
13 35.34	5.71024E-03	7.8437	0.64962	15515.	3298.3	411.87	1.3955
1.4000	4.66584E-03	1373.6	113.76	4.7345	10284.	570.00	1378.3
14 41.50	6.23574E-03	8.5768	0.71230	16928.	3336.1	413.28	1.3770
1.4000	4.70331E-03	1367.4	114.23	4.7752	10279.	570.00	1372.2
15 48.20	6.80109E-03	9.2469	0.75129	18641.	3394.3	415.18	1.3656
1.4000	4.75334E-03	1359.3	110.47	4.6459	10291.	570.00	1363.8
16 55.44	7.42544E-03	9.9923	0.78217	20093.	3485.2	418.35	1.3463
1.4000	4.85394E-03	1345.7	105.36	4.4758	10290.	570.00	1349.8
17 63.25	8.07368E-03	10.748	0.69645	21798.	3582.6	421.88	1.3249
1.4000	4.94785E-03	1331.2	86.262	3.7076	10271.	570.00	1334.0
18 71.63	8.73640E-03	11.485	0.67511	23532.	3681.1	425.63	1.3023
1.4000	5.03907E-03	1314.6	79.680	3.4686	10231.	570.00	1317.0
19 80.56	9.38424E-03	12.239	0.56019	25236.	3756.3	428.13	1.2872
1.4000	5.11204E-03	1304.2	59.695	2.6207	10228.	570.00	1305.5
20 90.04	9.98756E-03	12.921	0.58053	26820.	3807.6	430.41	1.2734
1.4000	5.15436E-03	1293.7	58.126	2.5726	10177.	570.00	1295.0
21 100.00	1.04963E-02	13.538	0.36156	28167.	3810.6	431.44	1.2672
1.4000	5.14609E-03	1289.8	34.446	1.5299	10100.	570.00	1290.2

ITERATION NO.= 300   X-STATION NO.= 30   Y-INNER = 0.0001   Y-OUTER = 2.0423   OUTPUT NO. = 2

	STREAMLINE % / CP/CV	W1 / DENSITY	W2 / U	W5 / V	W4 / FLOW ANG(D)	P-STAT / P-STAG	TEMP(R) / T-STAG	MACH NO / VELOCITY
1	0.0	4.60378E-07	6.27171E-04	0.0	1.2480	3285.5	415.53	1.5654
	1.4000	4.60378E-03	1362.3	0.0	0.0	9925.9	570.00	1362.3
2	0.24	4.70337E-04	0.64074	5.11210E-03	1275.0	5281.6	415.52	1.3634
	1.4000	4.60156E-03	1362.5	10.869	0.45712	9921.7	570.00	1362.3
3	0.97	9.40403E-04	1.2800	1.89530E-02	2545.9	5284.2	415.76	1.3619
	1.4000	4.60248E-03	1361.1	20.154	0.84832	9909.1	570.00	1361.3
4	2.17	1.40762E-03	1.9156	3.82864E-02	3815.2	3278.0	415.79	1.3618
	1.4000	4.59351E-03	1560.9	27.201	1.1451	9888.2	570.00	1361.1
5	3.85	1.87237E-03	2.5466	7.25318E-02	5074.5	3271.3	415.90	1.3611
	1.4000	4.58295E-03	1360.1	38.738	1.6314	9859.0	570.00	1360.7
6	6.01	2.33732E-03	5.1832	0.11348	6336.6	3263.4	415.42	1.3640
	1.4000	4.57704E-03	1361.9	48.549	2.0416	9874.6	570.00	1362.8
7	8.66	2.80129E-03	5.9356	0.16319	7602.8	3245.7	413.67	1.3746
	1.4000	4.57148E-03	1569.2	58.256	2.4363	9967.3	570.00	1370.5
8	11.81	3.26914E-03	4.5022	0.23182	8883.5	3231.4	411.71	1.3865
	1.4000	4.57294E-03	1577.2	70.912	2.9476	10089.	570.00	1379.0
9	15.46	3.73765E-03	5.1813	0.29687	10171.	3215.5	409.52	1.3998
	1.4000	4.57485E-03	1386.2	79.428	3.2793	10229.	570.00	1388.5
10	19.61	4.19956E-03	5.8415	0.37111	11437.	3202.9	408.33	1.4070
	1.4000	4.56958E-03	1390.8	88.361	3.6351	10292.	570.00	1393.6
11	24.27	4.66951E-03	6.4925	0.46109	12716.	3204.1	408.28	1.4075
	1.4000	4.57246E-03	1390.4	98.745	4.0624	10301.	570.00	1393.9
12	29.41	5.15180E-03	7.1459	0.52522	14025.	3217.9	409.81	1.4041
	1.4000	4.58616E-03	1387.9	101.95	4.2015	10299.	570.00	1391.6
13	35.06	5.66315E-03	7.8210	0.60879	15403.	3254.2	410.28	1.3951
	1.4000	4.62128E-03	1381.0	137.50	4.4515	10285.	570.00	1385.2
14	41.22	6.22563E-05	8.5296	0.65076	16901.	3321.0	412.75	1.3802
	1.4000	4.68802E-03	1370.5	104.56	4.3629	10278.	570.00	1374.5
15	47.94	6.52681E-03	9.2743	0.66344	18506.	3406.0	415.60	1.3629
	1.4000	4.77508E-03	1358.5	97.182	4.0917	10291.	570.00	1362.0
16	55.22	7.48132E-03	10.041	0.67588	20231.	3515.5	419.38	1.3400
	1.4000	4.85405E-03	1342.2	90.342	3.8509	10290.	570.00	1345.2
17	63.08	8.14346E-03	10.803	0.58407	21970.	3619.3	423.10	1.3176
	1.4000	4.98407E-05	1326.6	71.722	3.0948	10271.	570.00	1328.5
18	71.51	8.50124E-05	11.534	0.59527	23691.	3712.5	420.66	1.2961
	1.4000	5.06983E-03	1310.5	67.635	2.9563	10231.	570.00	1512.3
19	80.48	9.43213E-03	12.277	0.48314	25355.	3776.2	428.77	1.2833
	1.4000	5.13139E-03	1301.6	51.223	2.2537	10229.	570.00	1302.6
20	90.00	1.00257E-02	12.952	0.54760	26915.	3820.9	437.84	1.2708
	1.4000	5.16726E-03	1291.9	54.619	2.4210	10177.	570.00	1293.0
21	100.00	1.05353E-02	13.568	0.56256	28264.	5823.4	451.86	1.2647
	1.4000	5.15844E-03	1287.8	34.393	1.5299	10100.	570.00	1288.3

ITERATION NO.= 300 X-STATION NO.= 31 Y-INNER = 0.0001 Y-OUTER = 2.0450 OUTPUT NO. = 2

STREAMLINE %	W1	W2	W3	W4	P-STAT	TEMP(R)	MACH NO
CP/CV	DENSITY	U	V	FLOW ANG(D)	P-STAG	T-STAG	VELOCITY
1 0.0	4.49170E-07	6.19258E-04	0.0	1.2183	3162.0	411.09	1.3903
1.4000	4.48170E-03	1381.7	0.0	0.0	9925.9	570.00	1381.7
2 0.24	4.58464E-04	0.63349	4.76824E-03	1246.3	3160.4	411.07	1.3903
1.4000	4.47953E-03	1381.8	10.409	0.43126	9921.7	570.00	1381.8
3 0.96	9.16606E-04	1.2655	1.89745E-02	2491.4	3162.6	411.30	1.3890
1.4000	4.48014E-03	1380.6	20.701	0.85901	9909.3	570.00	1380.8
4 2.15	1.37204E-03	1.8940	3.85704E-02	3729.3	3156.7	411.33	1.3898
1.4000	4.47151E-03	1380.4	28.112	1.1667	9880.6	570.00	1380.7
5 3.82	1.82468E-03	2.5177	7.24480E-02	4959.4	3149.4	411.40	1.3884
1.4000	4.46039E-03	1379.8	39.704	1.6483	9859.7	570.00	1380.4
6 5.95	2.27812E-03	3.1466	0.11456	6193.3	3142.7	411.00	1.3908
1.4000	4.45526E-03	1381.2	50.287	2.0851	9872.5	570.00	1382.1
7 8.57	2.72228E-03	3.7917	0.16403	7435.5	3128.9	409.40	1.4005
1.4000	4.45301E-03	1387.8	60.034	2.4771	9964.2	570.00	1389.1
8 11.69	3.19227E-03	4.4519	0.23101	8696.8	3120.4	407.68	1.4109
1.4000	4.45957E-03	1394.6	72.367	2.9705	10084.	570.00	1396.5
9 15.31	3.65769E-03	5.1286	0.29414	9976.4	3114.2	405.82	1.4223
1.4000	4.47111E-03	1402.1	80.417	3.2825	10227.	570.00	1404.5
10 19.43	4.12326E-03	5.7912	0.36077	11251.	3115.5	405.17	1.4262
1.4000	4.46025E-03	1404.5	87.498	3.5648	10289.	570.00	1407.2
11 24.05	4.60349E-03	6.4516	0.44005	12557.	3135.1	405.76	1.4226
1.4000	4.50191E-03	1401.5	95.591	3.9020	10301.	570.00	1404.7
12 29.18	5.10630E-03	7.1257	0.48916	13916.	3172.3	407.15	1.4142
1.4000	4.53571E-03	1395.5	95.795	3.9270	10299.	570.00	1398.8
13 34.82	5.64571E-03	7.8191	0.54939	15363.	3234.1	409.55	1.3996
1.4000	4.60152E-03	1385.0	97.312	4.0192	10288.	570.00	1388.4
14 41.00	6.23676E-03	8.5457	0.56937	16935.	3374.8	412.89	1.3794
1.4000	4.69175E-03	1370.9	91.293	3.8100	10278.	570.00	1373.9
15 47.75	6.86548E-03	9.3118	0.55901	18602.	3426.8	416.33	1.3585
1.4000	4.79583E-03	1356.3	81.423	3.4355	10290.	570.00	1358.8
16 55.07	7.53162E-03	10.085	0.56075	20356.	3542.1	420.28	1.3346
1.4000	4.91045E-03	1339.1	74.452	3.1823	10290.	570.00	1341.2
17 62.98	8.18874E-03	10.842	0.47346	22082.	3640.7	423.81	1.3133
1.4000	5.00521E-03	1324.0	57.818	2.5004	10272.	570.00	1325.3
18 71.44	8.82940E-03	11.563	0.50476	23762.	3722.3	424.98	1.2941
1.4000	5.07936E-03	1309.6	57.168	2.4996	10232.	570.00	1310.8
19 80.44	9.43810E-03	12.292	0.41659	25373.	3772.6	428.66	1.2840
1.4000	5.12791E-03	1302.4	44.139	1.9411	10229.	570.00	1303.1
20 89.98	1.00184E-02	12.960	0.51718	26901.	3810.0	430.49	1.2730
1.4000	5.15674E-03	1293.6	51.622	2.2852	10177.	570.00	1294.7
21 100.00	1.05266E-02	13.575	0.36254	28248.	3812.0	431.49	1.2669
1.4000	5.14742E-03	1289.5	34.441	1.5299	10100.	570.00	1290.0

ITERATION NO.= 300 X-STATION NO.= 32 Y-INNER = 0.0001 Y-OUTER = 2.0477 OUTPUT NO. = 2

STREAMLINE # / CP/CV		W1 / DENSITY	W2 / U	W3 / V	W4 / FLOW ANGLE	P-STAT / P-STAG	TEMP(R) / T-STAG	MACH NO / VELOCITY
1	0.0	4.36519E-07	6.11281E-04	0.0	1.1899	3047.6	406.78	1.4164
	1.4000	4.36519E-03	1400.4	0.0	0.0	9925.9	570.00	1400.4
2	0.24	4.47134E-04	0.62615	4.46307E-03	1218.8	3046.0	406.77	1.4165
	1.4000	4.35312E-03	1400.4	9.9815	0.40839	9921.8	570.00	1400.4
3	0.95	8.93905E-04	1.2509	1.89420E-02	2436.4	3047.9	406.98	1.4152
	1.4000	4.36347E-03	1399.3	21.190	0.86758	9909.4	570.00	1399.5
4	2.13	1.33830E-03	1.8722	3.89230E-02	3647.4	3043.0	407.03	1.4149
	1.4000	4.35584E-03	1398.9	29.039	1.1879	9889.0	570.00	1399.2
5	3.78	1.78004E-03	2.4890	7.20393E-02	4851.1	3036.4	407.12	1.4143
	1.4000	4.34555E-03	1398.3	40.471	1.6579	9860.3	570.00	1398.9
6	5.89	2.22353E-03	3.1169	0.11441	6060.8	3032.5	406.85	1.4160
	1.4000	4.34280E-03	1399.1	51.454	2.1362	9870.4	570.00	1400.0
7	8.49	2.67029E-03	3.7503	0.16251	7284.2	3024.5	405.48	1.4243
	1.4000	4.34596E-03	1404.6	60.861	2.4811	9961.2	570.00	1405.9
8	11.57	3.12551E-03	4.4066	0.22617	8534.0	3024.4	404.11	1.4326
	1.4000	4.36058E-03	1409.9	72.363	2.9382	10080.	570.00	1411.7
9	15.16	3.59197E-03	5.0843	0.28489	9816.3	3030.8	402.71	1.4412
	1.4000	4.38503E-03	1415.5	79.313	3.2071	10225.	570.00	1417.7
10	19.26	4.06564E-03	5.7535	0.34132	11111.	3049.5	402.72	1.4411
	1.4000	4.41187E-03	1415.1	83.953	3.3951	10286.	570.00	1417.6
11	23.87	4.56146E-03	6.4277	0.40672	12455.	3089.5	404.06	1.4330
	1.4000	4.45457E-03	1409.1	89.164	3.6206	10301.	570.00	1412.0
12	28.99	5.38752E-03	7.1205	0.43789	13872.	3150.2	406.33	1.4191
	1.4000	4.51709E-03	1399.6	86.071	3.5191	10299.	570.00	1402.3
13	34.64	3.65307E-03	7.8345	0.47396	15383.	3234.1	409.55	1.3996
	1.4000	4.60099E-03	1385.9	83.842	3.4620	10288.	570.00	1388.4
14	40.85	6.26624E-03	8.5803	0.47431	17009.	3340.7	413.45	1.5759
	1.4000	4.70776E-03	1369.3	75.692	3.1639	10278.	570.00	1371.4
15	47.63	6.90600E-03	9.3495	0.44797	18703.	3448.9	417.09	1.5539
	1.4000	4.81782E-03	1353.8	64.868	2.7432	10290.	570.00	1355.4
16	54.95	7.56713E-03	13.119	0.44849	20444.	3556.9	420.85	1.3311
	1.4000	4.92714E-03	1337.3	59.268	2.5377	10290.	570.00	1338.6
17	62.93	8.20606E-03	10.864	0.37401	22127.	5644.8	423.94	1.3125
	1.4000	5.00923E-03	1323.9	45.578	1.9717	10272.	570.00	1324.7
18	71.41	5.5[illegible]374E-03	11.572	0.42902	23751.	3712.1	424.65	1.2961
	1.4000	5.06946E-03	1311.5	48.422	2.1232	10232.	570.00	1312.4
19	80.43	5.46989E-03	12.289	0.36206	25309.	3750.0	427.92	1.2885
	1.4000	5.10589E-03	1305.9	38.476	1.6876	10229.	570.00	1306.5
20	89.97	5.57607E-03	12.950	0.49029	26904.	3780.6	429.53	1.2787
	1.4000	5.12822E-03	1298.1	49.146	2.1681	10177.	570.00	1299.1
21	100.00	1.04812E-02	13.563	0.34224	28143.	3782.0	429.51	1.2728
	1.4000	5.11950E-03	1294.1	34.561	1.5299	10100.	570.00	1294.5

ITERATION NO. = 300 X-STATION NO. = 33 Y-INNER = 0.0001 Y-OUTER = 2.0504 OUTPUT NO. = 2

STREAMLINE #	W1	W2	W3	W4	P-STAT	TEMP(R)	MACH NO
CP/CV	DENSITY	U	V	FLOW ANG(D)	P-STAO	T-STAG	VELOCITY
1 0.0	4.25452E-07	6.03323E-04	0.0	1.1628	2939.9	402.62	1.4418
1.4000	4.25452E-03	1418.1	0.0	0.0	9925.9	570.00	1418.1
2 0.23	4.36375E-04	0.61981	4.18243E-03	1192.6	2938.5	402.61	1.4418
1.4000	4.25257E-03	1418.1	9.5845	0.38724	9921.8	570.00	1418.1
3 0.94	8.72411E-04	1.2362	1.87712E-02	2394.0	2940.4	402.82	1.4405
1.4000	4.25293E-03	1417.0	21.516	0.86992	9909.6	570.00	1417.2
4 2.11	1.30667E-03	1.8508	3.47628E-02	3570.4	2937.3	402.94	1.4398
1.4000	4.24736E-03	1416.4	29.665	1.1998	9889.4	570.00	1416.7
5 3.74	1.73894E-03	2.4613	7.08960E-02	4751.1	2933.3	403.11	1.4387
1.4000	4.23969E-03	1415.4	40.770	1.6499	9861.0	570.00	1416.0
6 5.84	2.17446E-03	3.0774	0.11250	5941.2	2934.1	403.06	1.4391
1.4000	4.24143E-03	1415.3	51.737	2.0936	9868.4	570.00	1416.2
7 8.41	2.61608E-03	3.7131	0.15786	7152.4	2934.1	402.02	1.4454
1.4000	4.25249E-03	1419.3	63.342	2.4344	9958.3	570.00	1420.6
8 11.47	3.07049E-03	4.3684	0.21637	8399.6	2945.3	401.11	1.4509
1.4000	4.27822E-03	1422.7	70.467	2.8356	10075.	570.00	1424.4
9 15.03	3.54222E-03	5.0508	0.26806	9699.1	2967.0	400.29	1.4560
1.4000	4.31865E-03	1425.9	75.675	3.0379	10223.	570.00	1427.9
10 19.11	4.02827E-03	5.7304	0.31170	11020.	3005.0	401.06	1.4513
1.4000	4.36560E-03	1422.6	77.378	3.1135	10284.	570.00	1424.7
11 23.72	4.54280E-03	6.4209	0.36571	12411.	3066.2	403.19	1.4383
1.4000	4.43094E-03	1413.4	79.402	3.2153	10301.	570.00	1415.7
12 28.85	5.09176E-03	7.1319	0.37273	13884.	3148.1	405.25	1.4196
1.4000	4.51494E-03	1400.7	73.203	2.9917	10299.	570.00	1402.6
13 34.52	5.67773E-03	7.8614	0.38671	15445.	3247.8	410.04	1.3966
1.4000	4.61502E-03	1384.6	68.110	2.8162	10286.	570.00	1386.3
14 40.76	6.30176E-03	8.6143	0.37312	17098.	3361.1	414.17	1.3715
1.4000	4.72825E-03	1367.0	59.209	2.4802	10278.	570.00	1369.2
15 47.57	6.93849E-03	9.3806	0.34004	18784.	3465.3	417.66	1.3505
1.4000	4.83416E-03	1352.0	49.008	2.0760	10290.	570.00	1352.9
16 54.97	7.58247E-03	10.140	0.34797	20484.	3562.5	420.99	1.3304
1.4000	4.93068E-03	1337.3	45.892	1.9655	10290.	570.00	1338.1
17 62.92	8.19646E-03	10.869	0.29071	22107.	3632.1	423.52	1.3150
1.4000	4.99681E-03	1326.1	35.467	1.5320	10272.	570.00	1326.6
18 71.41	8.75019E-03	11.565	0.36964	23674.	3685.6	425.77	1.3014
1.4000	5.04359E-03	1315.7	41.938	1.8257	10232.	570.00	1316.3
19 80.44	9.35583E-03	12.271	0.31880	25183.	3713.0	426.71	1.2958
1.4000	5.06957E-03	1311.6	34.075	1.4882	10229.	570.00	1312.1
20 89.98	9.90530E-03	12.927	0.46699	26645.	3737.8	428.14	1.2871
1.4000	5.08673E-03	1304.6	47.121	2.0689	10177.	570.00	1305.5
21 100.00	1.04093E-02	13.538	0.36157	27975.	3738.9	429.11	1.2813
1.4000	5.07674E-03	1300.6	34.735	1.5299	10100.	570.00	1301.0

ITERATION NO.= 300 X-STATION NO.= 34 Y-INNER = 0.0001 Y-OUTER = 2.0331 OUTPUT NO. = 2

	STREAMLINE % / CP/CV	W1 / DENSITY	W2 / U	W3 / V	W4 / FLOW ANG(O)	P-STAT / P-STAG	TEMP(R) / T-STAG	MACH NO / VELOCITY
1	0.0	4.15082E-07	5.95530E-04	0.0	1.1372	2840.1	398.66	1.4659
	1.4000	4.15082E-03	1434.7	0.0	0.0	9925.9	570.00	1434.7
2	0.23	4.26300E-04	0.61162	3.89677E-03	1168.0	2838.8	398.66	1.4659
	1.4000	4.14897E-03	1434.7	9.1409	0.36504	9921.9	570.00	1434.8
3	0.93	8.52394E-04	1.2220	1.83543E-02	2335.1	2841.2	398.89	1.4645
	1.4000	4.14998E-03	1433.6	21.533	0.86051	9909.8	570.00	1433.8
4	2.08	1.27764E-03	1.8302	3.61092E-02	3499.5	2841.1	399.12	1.4631
	1.4000	4.14756E-03	1432.5	29.828	1.1929	9889.7	570.00	1432.8
5	3.70	1.70215E-03	2.4355	6.95458E-02	4661.2	2841.5	399.46	1.4610
	1.4000	4.14456E-03	1430.8	40.270	1.6121	9861.6	570.00	1431.4
6	5.78	2.13203E-03	3.0476	0.10821	5837.5	2849.3	399.72	1.4595
	1.4000	4.19323E-03	1429.4	59.754	2.0335	9846.4	570.00	1430.3
7	8.33	2.57170E-03	3.6819	0.14931	7044.0	2859.8	399.11	1.4632
	1.4000	4.17490E-03	1431.7	58.061	2.3223	9955.7	570.00	1432.9
8	11.37	3.02884E-03	4.3394	0.20058	8257.8	2884.7	398.78	1.4652
	1.4000	4.21469E-03	1432.7	66.222	2.6464	10071.	570.00	1434.2
9	14.92	3.50978E-03	5.0297	0.24278	9616.0	2924.1	398.67	1.4659
	1.4000	4.27551E-03	1433.0	69.171	2.7634	10219.	570.00	1434.7
10	19.00	4.01127E-03	5.7228	0.27154	10979.	2982.0	400.20	1.4565
	1.4000	4.34150E-03	1426.7	67.894	2.7166	10282.	570.00	1428.3
11	23.61	4.54512E-03	6.4296	0.30271	12418.	3062.8	403.06	1.4390
	1.4000	4.42742E-03	1414.6	66.602	2.6956	10301.	570.00	1416.2
12	28.76	5.11312E-03	7.1552	0.29669	13938.	3160.8	406.72	1.4168
	1.4000	4.52797E-03	1399.4	58.025	2.3744	10299.	570.00	1400.6
13	34.46	5.71069E-03	7.8930	0.29349	15527.	3268.3	410.77	1.3922
	1.4000	4.63575E-03	1382.1	51.393	2.1295	10287.	570.00	1383.1
14	40.73	6.33365E-03	8.6444	0.27336	17178.	3378.7	414.80	1.3678
	1.4000	4.74598E-03	1364.8	43.238	1.8145	10278.	570.00	1365.5
15	47.58	6.95626E-03	9.4012	0.24302	18829.	3471.4	417.87	1.3492
	1.4000	4.84022E-03	1351.5	34.935	1.4807	10290.	570.00	1351.9
16	54.99	7.57647E-03	10.146	0.26406	20472.	3552.1	420.62	1.3325
	1.4000	4.92034E-03	1339.2	34.833	1.4908	10290.	570.00	1339.6
17	62.95	8.16406E-03	10.861	0.22454	22032.	3605.5	422.63	1.3204
	1.4000	4.97058E-03	1330.3	27.503	1.1844	10272.	570.00	1330.6
18	71.44	8.73571E-03	11.546	0.32205	23547.	3647.0	424.50	1.3091
	1.4000	5.00578E-03	1321.6	34.866	1.5978	10232.	570.00	1322.2
19	80.46	9.28364E-03	12.243	0.28507	25013.	3666.3	425.17	1.3051
	1.4000	5.02424E-03	1318.7	30.707	1.3339	10229.	570.00	1319.1
20	89.99	9.82327E-03	12.893	0.44702	26445.	3686.2	426.44	1.2974
	1.4000	5.03649E-03	1312.5	45.506	1.9858	10177.	570.00	1313.3
21	100.00	1.03194E-02	13.502	0.36961	27744.	3687.0	427.40	1.2916
	1.4000	5.02634E-03	1308.4	34.945	1.5299	10100.	570.00	1308.9

ITERATION NO.= 300 X-STATION NO.= 35 Y-INNER = 0.0001 Y-OUTER = 2.0557 OUTPUT NO. = 2

STREAMLINE % CF/CV		W1 DENSITY	W2 U	W3 V	W4 FLOW ANG(D)	P-STAT P-STAG	TEMP(R) T-STAG	MACH NO VELOCITY
1	0.0 1.4000	4.05578E-07 4.05578E-02	5.88104E-04 1450.0	0.0 0.0	1.1138 0.0	2749.5 9925.9	394.99 570.00	1.4884 1450.0
2	0.23 1.4000	4.17090E-04 4.05405E-03	0.60479 1450.0	3.56723E-03 8.5527	1145.4 0.33794	2748.3 9921.9	394.98 570.00	1.4884 1450.1
3	0.92 1.4000	8.34246E-04 4.05633E-03	1.2086 1448.7	1.75750E-02 21.067	2290.5 0.83311	2751.8 9909.9	395.26 570.00	1.4867 1448.9
4	2.06 1.4000	1.25184E-03 4.05851E-03	1.8113 1446.9	3.65683E-02 29.212	3436.2 1.1566	2756.1 9890.1	395.67 570.00	1.4843 1447.2
5	3.67 1.4000	1.67055E-03 4.06232E-03	2.4127 1444.2	6.45008E-02 38.611	4583.8 1.5314	2762.8 9862.2	396.26 570.00	1.4806 1444.8
6	5.73 1.4000	2.09744E-03 4.08952E-03	3.0228 1441.2	0.10092 48.117	5752.8 1.9122	2779.9 9844.7	396.93 570.00	1.4765 1442.0
7	8.27 1.4000	2.53840E-03 4.11547E-03	3.6585 1441.3	0.13608 53.610	6962.5 2.1302	2803.2 9953.5	396.86 570.00	1.4769 1442.3
8	11.30 1.4000	3.00182E-03 4.17164E-03	4.3215 1439.6	0.17802 59.302	8231.9 2.3588	2843.9 10068.	397.20 570.00	1.4749 1440.9
9	14.84 1.4000	3.49493E-03 4.24988E-03	5.0220 1436.9	0.20855 59.671	9580.3 2.3779	2901.9 10216.	397.94 570.00	1.4710 1438.2
10	18.93 1.4000	4.01310E-03 4.33782E-03	5.7295 1427.7	0.22115 55.106	10985. 2.2104	2978.6 10281.	400.08 570.00	1.4572 1428.8
11	23.55 1.4000	4.56396E-03 4.43998E-03	6.4503 1413.3	0.23491 51.471	12466. 2.0857	3075.0 10301.	403.52 570.00	1.4363 1414.2
12	28.73 1.4000	5.14408E-03 4.54944E-03	7.1845 1396.7	0.21438 41.676	14016. 1.7092	3181.8 10299.	407.49 570.00	1.4121 1397.3
13	34.46 1.4000	5.74300E-03 4.65590E-03	7.9228 1379.6	0.20106 35.010	15608. 1.4537	3288.2 10287.	411.49 570.00	1.3878 1380.0
14	40.76 1.4000	6.35468E-03 4.75553E-03	8.6662 1363.7	0.18360 28.892	17231. 1.2137	3388.3 10278.	415.13 570.00	1.3658 1364.1
15	47.62 1.4000	6.95637E-03 4.83399E-03	9.4098 1352.7	0.16152 23.219	18832. 0.48337	3465.1 10290.	417.65 570.00	1.3505 1352.9
16	55.04 1.4000	7.55102E-03 4.89742E-03	10.140 1342.9	0.19789 26.207	20414. 1.1180	3528.9 10290.	419.84 570.00	1.3373 1343.2
17	63.01 1.4000	8.11409E-03 4.93372E-03	10.841 1336.1	0.17394 21.437	21915. 0.91920	3568.1 10272.	421.38 570.00	1.3280 1336.2
18	71.49 1.4000	8.66665E-03 4.95973E-03	11.517 1329.8	0.28676 33.088	23384. 1.4264	3600.2 10231.	422.93 570.00	1.3186 1329.2
19	80.50 1.4000	9.19952E-03 4.97222E-03	12.206 1326.8	0.25907 28.161	24814. 1.2159	3613.3 10229.	423.40 570.00	1.3157 1327.1
20	90.01 1.4000	9.72723E-03 4.98075E-03	12.851 1321.2	0.42999 44.205	26218. 1.9164	3629.3 10177.	424.55 570.00	1.3088 1321.9
21	100.00 1.4000	1.02181E-02 4.97051E-03	13.459 1317.2	0.35945 35.178	27525. 1.5299	3629.8 10100.	425.49 570.00	1.3031 1317.6

ITERATION NO.= 300	X-STATION NO.= 36	Y-INNER = 0.0001	Y-OUTER = 2.9564	OUTPUT NO. = 2				
	STREAMLINE % CP/CV	W1 DENSITY	W2 U	W3 V	W4 FLOW ANG(D)	P-STAT P-STAG	TEMP(R) T-STAG	MACH NO VELOCITY
1	0.0 1.4000	3.97179E-07 3.97179E-03	5.81318E-04 1463.6	0.0 0.0	1.0929 0.0	2670.1 9925.9	391.70 570.00	1.5087 1463.6
2	0.23 1.4000	4.08991E-04 3.97015E-03	0.59860 1463.6	3.15547E-03 7.7152	1125.4 0.30203	2669.0 9921.9	391.69 570.00	1.5087 1463.6
3	0.91 1.4000	8.18479E-04 3.97449E-03	1.1966 1462.0	1.63344E-02 19.920	2251.8 0.78062	2674.4 9910.1	392.05 570.00	1.5065 1462.2
4	2.05 1.4000	1.23007E-03 3.98274E-03	1.7950 1459.3	3.38445E-02 27.514	3382.7 1.0802	2684.3 9890.3	392.69 570.00	1.5025 1459.5
5	3.64 1.4000	1.64923E-03 3.99555E-03	2.3941 1455.2	5.82880E-02 35.428	4521.8 1.3947	2699.4 9862.7	393.63 570.00	1.4967 1455.6
6	5.69 1.4000	2.07196E-03 4.02571E-03	3.0046 1450.1	8.99932E-02 43.434	5690.4 1.7156	2727.9 9963.3	394.81 570.00	1.4895 1450.8
7	8.22 1.4000	2.51749E-03 4.07618E-03	3.6449 1447.7	0.11751 46.677	6911.5 1.8467	2766.0 9951.8	395.37 570.00	1.4863 1448.5
8	11.25 1.4000	2.94014E-03 4.15000E-03	4.3157 1443.3	0.14824 49.576	8204.0 1.9673	2823.5 10066.	396.41 570.00	1.4797 1444.2
9	14.80 1.4000	3.49694E-03 4.24679E-03	5.0278 1437.8	0.16551 47.330	9586.4 1.8855	2899.1 10214.	397.75 570.00	1.4715 1438.5
10	18.89 1.4000	4.03034E-03 4.35099E-03	5.7481 1426.1	0.16203 40.200	11030. 1.6146	2991.4 10201.	400.58 570.00	1.4542 1426.7
11	23.54 1.4000	4.59319E-03 4.46259E-03	6.4779 1410.3	0.16093 35.036	12540. 1.4231	3096.9 10301.	404.34 570.00	1.4313 1410.8
12	28.74 1.4000	5.17667E-03 4.57231E-03	7.2138 1393.5	0.13163 25.428	14097. 1.0454	3204.2 10299.	408.31 570.00	1.4071 1393.8
13	34.51 1.4000	5.76749E-03 4.66966E-03	7.9460 1377.7	0.11589 20.094	15670. 0.83561	3301.8 10286.	411.97 570.00	1.3849 1377.9
14	40.83 1.4000	6.36096E-03 4.75404E-03	8.6775 1364.2	0.10701 16.823	17249. 0.70653	3386.8 10278.	415.07 570.00	1.3661 1364.3
15	47.70 1.4000	6.93925E-03 4.81582E-03	9.4070 1355.6	9.69509E-02 13.971	18793. 0.59048	3446.8 10290.	417.02 570.00	1.3543 1355.7
16	55.12 1.4000	7.50986E-03 4.85438E-03	10.124 1349.1	0.14796 19.702	20317. 0.83731	3495.7 10290.	418.70 570.00	1.3441 1348.2
17	63.08 1.4000	8.05179E-03 4.88944E-03	10.813 1342.9	0.13624 16.920	21767. 0.72186	3523.4 10271.	419.87 570.00	1.3371 1343.0
18	71.56 1.4000	8.58816E-03 4.90842E-03	11.481 1336.8	0.26028 30.306	23198. 1.2987	3546.1 10231.	421.18 570.00	1.3292 1337.2
19	80.54 1.4000	9.10817E-03 4.91643E-03	12.163 1335.4	0.23917 26.259	24597. 1.1265	3556.7 10228.	421.90 570.00	1.3272 1335.7
20	90.04 1.4000	9.62496E-03 4.92191E-03	12.804 1330.3	0.41546 43.165	25976. 1.8585	3569.4 10177.	422.54 570.00	1.3209 1331.0
21	100.00 1.4000	1.01104E-02 4.91169E-03	13.410 1326.3	0.35814 35.423	27270. 1.5299	3569.8 10100.	423.47 570.00	1.3153 1326.8

ITERATION NO.= 300 X-STATION NO.= 37 Y-INNER = 0.0001 Y-OUTER = 2.0611 OUTPUT NO. = 2

	STREAMLINE % / CP/CV	W1 / DENSITY	W2 / U	W3 / V	W4 / FLOW ANG(D)	P-STAT / P-STAG	TEMP(R) / T-STAG	MACH NO / VELOCITY
1	0.0	3.90173E-07	5.75496E-04	0.0	1.0755	2604.4	388.92	1.5258
	1.4000	3.90173E-03	1475.0	0.0	0.0	9925.9	570.00	1475.0
2	0.23	4.02210E-04	0.59339	2.61632E-03	1109.0	2633.4	388.92	1.5258
	1.4000	3.90021E-03	1475.0	6.5032	0.25262	9922.0	570.00	1475.0
3	0.90	8.05717E-04	1.1868	1.44144E-02	2720.3	2611.4	389.39	1.5229
	1.4000	3.90742E-03	1472.9	17.890	0.69567	9910.2	570.00	1473.0
4	2.03	1.21327E-03	1.7823	2.96515E-02	3341.5	2628.3	390.33	1.5171
	1.4000	3.92323E-03	1469.0	24.439	0.95312	9890.6	570.00	1469.2
5	3.62	1.62738E-03	2.3812	4.94445E-02	4478.1	2653.6	391.71	1.5086
	1.4000	3.94704E-03	1463.2	30.303	1.1855	9863.1	570.00	1463.6
6	5.66	2.05687E-03	2.9945	7.48710E-02	5653.7	2695.3	393.47	1.4978
	1.4000	3.99117E-03	1455.9	36.400	1.4322	9862.4	570.00	1456.3
7	8.19	2.50972E-03	3.6411	9.30954E-02	6893.2	2749.2	394.69	1.4902
	1.4000	4.05837E-03	1450.8	37.094	1.4646	9950.8	570.00	1451.3
8	11.22	2.99360E-03	4.3219	0.11126	8213.5	2823.0	396.40	1.4798
	1.4000	4.14939E-03	1443.7	37.167	1.4747	10065.	570.00	1444.2
9	14.79	3.51363E-03	5.0450	0.11482	9628.7	2913.2	398.31	1.4681
	1.4000	4.26148E-03	1435.8	32.678	1.3037	10213.	570.00	1436.2
10	18.90	4.05873E-03	5.7743	9.70807E-02	11100.	3015.2	401.48	1.4487
	1.4000	4.37571E-03	1422.7	23.919	0.96320	10281.	570.00	1422.9
11	23.58	4.62591E-03	6.5070	8.57123E-02	12621.	3122.1	405.28	1.4259
	1.4000	4.48852E-03	1406.6	18.529	0.75468	10301.	570.00	1406.8
12	28.81	5.20407E-03	7.2384	5.42844E-02	14166.	3222.1	408.96	1.4032
	1.4000	4.59051E-03	1390.9	10.431	0.42968	10299.	570.00	1391.0
13	34.60	5.77973E-03	7.9601	4.27761E-02	15702.	3305.6	412.11	1.3840
	1.4000	4.67347E-03	1377.2	7.3889	0.30739	10286.	570.00	1377.3
14	40.93	6.35186E-03	8.6784	4.60090E-02	17229.	3373.8	414.62	1.3689
	1.4000	4.74104E-03	1366.3	7.2434	0.30375	10278.	570.00	1366.3
15	47.81	6.90746E-03	9.3944	4.82169E-02	18719.	3418.5	416.04	1.3603
	1.4000	4.78749E-03	1360.0	6.9834	0.29407	10290.	570.00	1360.1
16	55.23	7.45711E-03	10.099	0.11151	20192.	3455.0	417.31	1.3526
	1.4000	4.82391E-03	1354.3	14.953	0.63257	10290.	570.00	1354.4
17	63.17	7.98129E-03	10.778	0.10862	21600.	3474.0	418.18	1.3473
	1.4000	4.84033E-03	1350.5	13.609	0.57737	10271.	570.00	1350.5
18	71.63	8.50405E-03	11.440	0.24053	22998.	3493.2	419.30	1.3405
	1.4000	4.85403E-03	1345.2	28.284	1.2045	10231.	570.00	1345.5
19	80.60	9.01290E-03	12.117	0.22408	24371.	3498.3	419.51	1.3392
	1.4000	4.85866E-03	1344.4	24.862	1.0595	10228.	570.00	1344.6
20	90.06	9.51942E-03	12.753	0.40312	25725.	3508.4	420.47	1.3335
	1.4000	4.86164E-03	1339.7	42.347	1.8195	10177.	570.00	1340.3
21	100.00	9.99940E-03	13.357	0.35672	27006.	3508.7	421.39	1.3279
	1.4000	4.85144E-03	1335.7	35.674	1.5299	10100.	570.00	1336.2

ITERATION NO.= 300 X-STATION NO.= 38 Y-INNER = 0.0001 Y-OUTER = 2.0638 OUTPUT NO. = 2

	STREAMLINE % / CP/CV	W1 / DENSITY	W2 / U	W3 / V	W4 / FLOW ANGLE	P-STAT / P-STAG	TEMP(R) / T-STAG	MACH NO / VELOCITY
1	0.0	3.84935E-07	5.71047E-04	0.0	1.0625	2555.6	385.82	1.5388
	1.4000	3.84935E-03	1483.5	0.0	0.0	9925.9	570.00	1483.5
2	0.22	3.97430E-04	0.58958	1.90727E-03	1297.0	2554.6	386.82	1.5387
	1.4000	3.84790E-03	1483.5	4.7990	0.18535	9922.0	570.00	1483.5
3	0.90	7.96721E-04	1.1799	1.17732E-02	2198.2	2566.0	387.44	1.5349
	1.4000	3.85878E-03	1480.9	14.777	0.57171	9910.3	570.00	1481.0
4	2.03	1.20255E-03	1.7744	2.37109E-02	3315.2	2591.1	388.74	1.5269
	1.4000	3.88350E-03	1475.6	19.717	0.76557	9890.7	570.00	1475.7
5	3.61	1.61826E-03	2.3753	3.75626E-02	4456.0	2628.0	390.62	1.5153
	1.4000	3.91982E-03	1467.8	23.212	0.90601	9863.3	570.00	1468.0
6	5.65	2.05323E-03	2.9537	5.51667E-02	5645.4	2683.8	392.99	1.5007
	1.4000	3.97892E-03	1458.0	26.868	1.0557	9861.9	570.00	1458.3
7	8.18	2.51547E-03	3.6484	6.27374E-02	6938.3	2753.0	394.85	1.4893
	1.4000	4.06239E-03	1450.4	24.960	0.98594	9950.6	570.00	1450.6
8	11.22	3.01079E-03	4.3389	6.79393E-02	8257.0	2840.5	397.10	1.4755
	1.4000	4.16779E-03	1441.1	22.565	0.89705	10065.	570.00	1441.3
9	14.81	3.54133E-03	5.0705	5.88222E-02	9698.4	2940.0	399.34	1.4618
	1.4000	4.28951E-03	1431.8	16.610	0.66465	10214.	570.00	1431.9
10	18.96	4.09198E-03	5.8034	3.04676E-02	11184.	3044.2	402.57	1.4420
	1.4000	4.40583E-03	1418.2	7.4457	0.30080	10282.	570.00	1418.3
11	23.66	4.65589E-03	6.5330	1.45797E-02	12697.	3144.8	406.12	1.4205
	1.4000	4.51174E-03	1403.2	3.1315	0.12787	10301.	570.00	1403.2
12	28.92	5.22175E-03	7.2555	-1.29297E-02	14211.	3231.5	409.30	1.4011
	1.4000	4.60012E-03	1389.5	-2.4761	-0.10210	10299.	570.00	1389.5
13	34.72	5.77543E-03	7.9646	-1.61244E-02	15701.	3298.6	411.97	1.3855
	1.4000	4.66635E-03	1376.3	-2.7904	-0.11599	10256.	570.00	1375.3
14	41.06	6.32916E-03	8.6701	9.91466E-05	17176.	3350.8	413.81	1.3738
	1.4000	4.71796E-03	1369.9	1.50330E-02	6.28769E-04	10278.	570.00	1369.9
15	47.93	6.86456E-03	9.3741	1.29821E-02	18618.	3382.6	414.78	1.3679
	1.4000	4.75158E-03	1365.6	1.8766	7.87371E-02	10291.	570.00	1365.6
16	55.34	7.39662E-03	10.069	8.55925E-02	20048.	3409.7	415.74	1.3621
	1.4000	4.77857E-03	1361.3	11.572	0.48703	10293.	570.00	1361.4
17	63.27	7.90612E-03	10.749	8.86618E-02	21421.	3422.1	416.39	1.3581
	1.4000	4.78851E-03	1358.4	11.214	0.47299	10271.	570.00	1358.5
18	71.71	8.41717E-03	11.396	0.22569	22791.	3437.1	417.37	1.3522
	1.4000	4.79317E-03	1353.9	26.837	1.1356	10231.	570.00	1354.1
19	80.65	8.91619E-03	12.067	0.21277	24140.	3439.6	417.49	1.3515
	1.4000	4.80029E-03	1353.4	23.563	1.0101	10228.	570.00	1353.6
20	90.09	9.41314E-03	12.699	0.39262	25472.	3447.6	418.38	1.3461
	1.4000	4.80122E-03	1349.0	41.709	1.7703	10176.	570.00	1349.7
21	100.00	9.88789E-03	13.301	0.35523	26741.	3447.7	419.28	1.3407
	1.4000	4.79110E-03	1345.2	35.926	1.5299	10100.	570.00	1345.6

ITERATION NO.= 309 X-STATION NO.= 39 Y-INNER = 0.0001 Y-OUTER = 2.0665 OUTPUT NO. = 2

STREAMLINE %	W1	W2	W3	W4	P-STAT	TEMP(R)	MACH NO
CP/CV	DENSITY	U	V	FLOW ANG(D)	P-STAG	T-STAG	VELOCITY
1 0.0	3.81894E-07	5.68428E-04	0.0	1.0549	2527.4	385.59	1.5463
1.4000	3.81894E-03	1488.4	0.0	0.0	9925.9	570.00	1488.4
2 0.22	3.94810E-04	0.58764	9.83315E-04	1090.5	2526.5	385.60	1.5463
1.4000	3.81757E-03	1488.4	2.4906	9.58741E-02	9922.0	570.00	1488.4
3 0.90	7.92372E-04	1.1748	8.24483E-03	2187.6	2541.8	386.39	1.5414
1.4000	3.83274E-03	1485.2	10.405	0.40141	9913.3	570.00	1485.2
4 2.02	1.19906E-03	1.7726	1.57720E-02	3307.0	2575.9	388.09	1.5309
1.4000	3.86726E-03	1478.3	13.154	0.50980	9890.7	570.00	1478.3
5 3.61	1.61902E-03	2.3775	2.23627E-02	4458.5	2624.9	390.49	1.5161
1.4000	3.91658E-03	1468.5	13.812	0.53891	9863.3	570.00	1468.5
6 5.66	2.06160E-03	3.0026	3.08271E-02	5666.9	2694.2	393.42	1.4980
1.4000	3.98595E-03	1456.4	14.953	0.58823	9562.2	570.00	1456.5
7 8.20	2.53392E-03	3.6657	2.71910E-02	6954.9	2774.2	395.79	1.4835
1.4000	4.08658E-03	1446.7	10.731	0.42499	9951.3	570.00	1446.7
8 11.27	3.03836E-03	4.3641	2.01348E-02	8327.8	2872.4	398.34	1.4679
1.4000	4.20133E-03	1436.1	6.6256	0.26434	10067.	570.00	1436.1
9 14.88	3.57536E-03	5.1004	1.03077E-03	9783.7	2973.8	400.61	1.4540
1.4000	4.32511E-03	1426.5	0.28830	1.15793E-02	10217.	570.00	1426.5
10 19.05	4.12467E-03	5.8314	-3.30626E-02	11266.	3072.5	403.62	1.4356
1.4000	4.43527E-03	1413.8	-8.0158	-0.32485	10283.	570.00	1413.8
11 23.78	4.67855E-03	6.5531	-4.78698E-02	12754.	3167.5	406.49	1.4169
1.4000	4.52782E-03	1400.7	-10.232	-0.41853	10301.	570.00	1400.7
12 29.05	5.22775E-03	7.2640	-6.72439E-02	14228.	3230.9	409.28	1.4012
1.4000	4.59944E-03	1389.5	-12.863	-0.53038	10299.	570.00	1389.6
13 34.86	5.76457E-03	7.9604	-6.05800E-02	15669.	3281.6	411.26	1.3992
1.4000	4.64912E-03	1380.9	-10.509	-0.43602	10285.	570.00	1381.0
14 41.20	6.29576E-03	8.6544	-3.27113E-02	17097.	3329.0	412.71	1.3804
1.4000	4.68697E-03	1374.6	-5.1958	-0.21656	10278.	570.00	1374.7
15 48.07	6.81396E-03	9.3482	-1.18529E-02	18497.	3341.6	413.34	1.3766
1.4000	4.71044E-03	1371.9	-1.7395	-7.26479E-02	10291.	570.00	1371.9
16 55.47	7.33144E-03	10.035	6.76131E-02	19693.	3361.6	416.05	1.3723
1.4000	4.73031E-03	1368.7	9.2223	0.38604	10290.	570.00	1368.8
17 63.38	7.82858E-03	10.498	7.44654E-02	21235.	3369.2	414.55	1.3693
1.4000	4.73540E-03	1366.6	9.5120	0.39860	10270.	570.00	1366.6
18 71.79	8.32436E-03	11.349	0.21523	22531.	3380.9	415.41	1.3641
1.4000	4.74196E-03	1362.6	25.840	1.0864	10231.	570.00	1362.8
19 80.71	8.81963E-03	12.016	0.20444	23910.	3381.4	415.46	1.3637
1.4000	4.74214E-03	1362.4	23.150	0.91477	10228.	570.00	1362.6
20 90.12	9.30512E-03	12.643	0.38370	25221.	3387.6	416.29	1.3588
1.4000	4.74143E-03	1358.3	41.222	1.7383	10176.	570.00	1358.9
21 100.00	9.77727E-03	13.243	0.35369	26477.	3397.7	417.18	1.3533
1.4000	4.73136E-03	1354.5	36.175	1.5299	10160.	570.00	1355.0

ITERATION NO.= 300 X-STATION NO.= 40 Y-INNER = 0.0001 Y-OUTER = 2.0692 OUTPUT NO. = 2

	STREAMLINE % / CP/CV	W1 / DENSITY	W2 / U	W3 / V	W4 / FLOW ANG(D)	P-STAT / P-STAG	TEMP(F) / T-STAG	MACH NO / VELOCITY
1	0.0	3.81559E-07	5.68137E-04	0.0	1.0540	2524.3	383.46	1.5472
	1.4000	3.81558E-03	1489.0	0.0	0.0	9925.9	570.00	1489.0
2	0.22	3.94982E-04	0.58811	-1.96425E-04	1091.1	2523.5	385.47	1.5471
	1.4000	3.81430E-03	1489.0	-0.49720	-1.91364E-02	9922.0	570.00	1489.0
3	0.90	7.93646E-04	1.1786	3.72699E-03	2191.1	2547.9	386.44	1.5411
	1.4000	3.83393E-03	1485.0	4.6959	0.18118	9910.3	570.00	1485.0
4	2.03	1.23396E-03	1.7778	5.69132E-03	3319.6	2586.0	388.52	1.5282
	1.4000	3.87008E-03	1476.4	4.7271	0.18343	9890.7	570.00	1476.6
5	3.62	1.63050E-03	2.3894	3.89740E-03	4497.6	2646.2	391.40	1.5105
	1.4000	3.93925E-03	1464.8	2.3658	9.25360E-02	9863.0	570.00	1464.8
6	5.69	2.08179E-03	3.0230	2.41810E-03	5717.7	2726.1	394.74	1.4900
	1.4000	4.02382E-03	1451.1	1.1616	4.59640E-02	9863.2	570.00	1451.1
7	8.25	2.56315E-03	3.6912	-1.20989E-02	7029.1	2815.8	397.38	1.4738
	1.4000	4.12866E-03	1440.1	-4.7203	-0.18780	9959.0	570.00	1440.1
8	11.34	3.07432E-03	4.3943	-2.96612E-02	8416.3	2913.6	399.93	1.4581
	1.4000	4.24471E-03	1429.4	-9.4529	-0.37891	10070.	570.00	1429.4
9	14.98	3.61084E-03	5.1307	-5.43059E-02	9872.7	3009.3	401.93	1.4460
	1.4000	4.36235E-03	1420.9	-15.040	-0.60642	10221.	570.00	1421.0
10	19.18	4.15240E-03	5.8551	-8.91250E-02	11335.	3095.6	404.47	1.4305
	1.4000	4.45930E-03	1410.1	-21.464	-0.87211	10285.	570.00	1410.2
11	23.93	4.65154E-03	6.5660	-9.85697E-02	12787.	3167.0	406.93	1.4155
	1.4000	4.53452E-03	1399.5	-21.010	-0.86007	10301.	570.00	1399.7
12	29.21	5.22242E-03	7.2646	-0.10801	14217.	3220.4	408.90	1.4035
	1.4000	4.58880E-03	1391.0	-20.683	-0.85185	10299.	570.00	1391.2
13	35.02	5.74044E-03	7.9492	-9.20864E-02	15612.	3256.5	410.37	1.3946
	1.4000	4.62366E-03	1384.8	-16.042	-0.66371	10265.	570.00	1384.9
14	41.36	6.25469E-03	8.6332	-5.48061E-02	17000.	3283.7	411.42	1.3883
	1.4000	4.65037E-03	1380.3	-8.7624	-0.36372	10279.	570.00	1380.3
15	48.22	6.75349E-03	9.3183	-2.84910E-02	18365.	3297.6	411.77	1.3861
	1.4000	4.66605E-03	1378.6	-4.2156	-0.17518	10291.	570.00	1378.8
16	55.60	7.26369E-03	9.9977	5.56335E-02	19731.	3312.2	412.31	1.3829
	1.4000	4.68053E-03	1376.4	7.6591	0.31883	10290.	570.00	1376.4
17	63.49	7.75020E-03	10.655	6.47091E-02	21049.	3316.1	412.68	1.3806
	1.4000	4.69192E-03	1374.6	8.3493	0.34796	10270.	570.00	1374.6
18	71.68	8.24161E-03	11.301	0.20762	22372.	3325.2	413.45	1.3760
	1.4000	4.69604E-03	1371.2	25.191	1.0525	10231.	570.00	1371.4
19	80.77	8.72417E-03	11.963	0.19853	23681.	3324.3	413.45	1.3760
	1.4000	4.68474E-03	1371.3	22.756	0.95074	10228.	570.00	1371.4
20	90.15	9.20466E-03	12.587	0.37610	24973.	3329.0	414.22	1.3713
	1.4000	4.68262E-03	1367.4	40.860	1.7115	10176.	570.00	1368.1
21	100.00	9.86851E-03	13.185	0.35213	26217.	3329.0	415.10	1.3659
	1.4000	4.67268E-03	1383.7	36.420	1.5299	10100.	570.00	1364.2

ITERATION NO.= 300   X-STATION NO.= 41   Y-INNER = 0.0001   Y-OUTER = 2.0718   OUTPUT NO. = 2

STREAMLINE %	W1	W2	W3	W4	P-STAT	TEMP(R)	MACH NO
CP/CV	DENSITY	U	V	FLOW ANG(D)	P-STAG	T-STAG	VELOCITY
1 0.0	3.84490E-07	5.70666E-04	0.0	1.0614	2551.4	386.64	1.5399
1.4000	3.84490E-03	1484.2	0.0	0.0	9925.9	570.00	1484.2
2 0.23	3.98542E-04	0.59150	-1.65857E-03	1100.1	2550.7	386.65	1.5398
1.4000	3.84370E-03	1484.2	-4.1626	-0.16066	9922.0	570.00	1484.2
3 0.91	8.01563E-04	1.1860	-1.82243E-03	2211.1	2573.8	387.78	1.5328
1.4000	3.86717E-03	1479.6	-2.2739	-8.80527E-02	9910.1	570.00	1479.6
4 2.05	1.21829E-03	1.7907	-6.48202E-03	3355.6	2624.4	390.17	1.5181
1.4000	3.91909E-03	1469.9	-5.3206	-0.20740	9890.4	570.00	1469.9
5 3.65	1.65297E-03	2.4080	-1.74965E-02	4543.9	2692.6	393.35	1.4985
1.4000	3.98836E-03	1456.7	-10.579	-0.41607	9862.5	570.00	1456.8
6 5.74	2.11263E-03	3.0471	-2.87527E-02	5794.8	2777.6	396.83	1.4771
1.4000	4.07816E-03	1442.3	-13.610	-0.54064	9865.0	570.00	1442.4
7 8.33	2.60026E-03	3.7221	-5.25414E-02	7120.8	2867.6	399.42	1.4613
1.4000	4.18302E-03	1431.4	-20.206	-0.80875	9955.6	570.00	1431.6
8 11.45	3.11273E-03	4.4262	-7.61156E-02	8512.3	2958.8	401.65	1.4477
1.4000	4.29218E-03	1422.0	-24.453	-0.98520	10074.	570.00	1422.2
9 15.11	3.64372E-03	5.1590	-0.10300	9955.0	3041.9	403.14	1.4386
1.4000	4.39641E-03	1415.6	-25.291	-1.1444	10224.	570.00	1415.9
10 19.33	4.17270E-03	5.6732	-0.13451	11387.	3110.9	405.01	1.4272
1.4000	4.47531E-03	1407.5	-32.236	-1.3120	10287.	570.00	1407.9
11 24.10	4.69475E-03	6.5718	-0.13648	12797.	3164.3	406.83	1.4161
1.4000	4.53175E-03	1399.8	-29.070	-1.1897	10301.	570.00	1400.1
12 29.39	5.20765E-03	7.2587	-0.13624	14182.	3201.9	409.23	1.4076
1.4000	4.56990E-03	1393.9	-26.161	-1.0753	10299.	570.00	1394.1
13 35.20	5.70890E-03	7.9327	-0.11286	15537.	3225.7	409.26	1.4014
1.4000	4.59231E-03	1389.5	-19.768	-0.81508	10285.	570.00	1389.7
14 41.53	6.20875E-03	8.6082	-6.86681E-02	16890.	3244.1	409.99	1.3969
1.4000	4.61024E-03	1386.5	-11.060	-0.45704	10279.	570.00	1386.5
15 48.37	6.70037E-03	9.2858	-3.90400E-02	18226.	3252.0	410.13	1.3961
1.4000	4.61993E-03	1385.9	-5.8265	-0.24088	10242.	570.00	1385.9
16 55.74	7.19498E-03	9.9587	4.81545E-02	19566.	3262.5	410.53	1.3936
1.4000	4.63025E-03	1384.1	6.6928	0.27705	10289.	570.00	1384.1
17 63.61	7.67209E-03	10.610	5.83095E-02	20860.	3269.5	410.80	1.3920
1.4000	4.62873E-03	1382.9	7.6002	0.31487	10269.	570.00	1383.0
18 71.97	8.15535E-03	11.252	0.20238	22164.	3270.6	411.50	1.3878
1.4000	4.63089E-03	1379.7	24.816	1.0304	10231.	570.00	1380.0
19 80.83	8.63051E-03	11.910	0.19446	23456.	3268.5	411.49	1.3880
1.4000	4.62845E-03	1380.0	22.531	0.93541	10228.	570.00	1380.1
20 90.18	9.10356E-03	12.530	0.36967	24731.	3272.0	412.18	1.3836
1.4000	4.62520E-03	1374.4	40.607	1.6899	10176.	570.00	1377.0
21 100.00	9.56221E-03	13.126	0.35055	25962.	3272.0	413.06	1.3783
1.4000	4.61533E-03	1372.6	36.660	1.5299	10100.	570.00	1375.1

ITERATION NO.= 300 X-STATION NO.= 42 Y-INNER = 0.0001 Y-OUTER = 2.0745 OUTPUT NO. = 2

	STREAMLINE % CP/CV	W1 DENSITY	W2 U	W3 V	W4 FLOW ANG(D)	P-STAT P-STAG	TEMP(R) T-STAG	MACH NO VELOCITY
1	0.0	3.91226E-07	5.76380E-04	0.0	1.0781	2614.3	389.54	1.9232
	1.4000	3.91226E-03	1475.5	0.0	0.0	9925.9	570.00	1475.5
2	0.23	4.06057E-04	0.55819	-3.37109E-05	1119.0	2613.6	389.35	1.5251
	1.4000	3.91113E-03	1473.2	-8.2020	-0.32288	9921.9	570.00	1473.2
3	0.92	8.16988E-04	1.1996	-8.25101E-03	2249.8	2638.6	390.55	1.5157
	1.4000	3.93650E-03	1468.5	-13.099	-0.39409	9909.9	570.00	1468.3
4	2.07	1.24251E-03	1.8115	-2.32232E-02	3416.2	2692.9	393.05	1.5003
	1.4000	3.95183E-05	1457.9	-16.276	-0.63961	9889.9	570.00	1458.0
5	5.70	1.68583E-C5	2.4352	-4.03468E-02	4625.7	2762.9	396.27	1.4805
	1.4000	4.06240E-03	1444.5	-23.933	-0.94920	9861.7	570.00	1444.7
6	5.81	2.15200E-03	3.0792	-6.01877E-02	5592.5	2844.9	399.53	1.4606
	1.4000	4.14880E-03	1430.8	-27.968	-1.1198	9867.5	570.00	1431.1
7	8.45	2.64183E-05	3.7555	-9.05184E-02	7224.3	2926.2	401.70	1.4474
	1.4000	4.24440E-03	1421.6	-34.264	-1.58C7	9959.1	570.C0	1422.0
8	11.58	3.15038E-05	4.4570	-0.11696	8606.4	3003.0	403.29	1.4577
	1.4000	4.33848E-05	1414.7	-37.125	-1.5052	10080.	570.00	1415.2
9	15.27	3.67112E-05	5.18C8	-0.14185	10074.	3068.2	404.10	1.4527
	1.4600	4.42379E-03	1411.2	-38.638	-1.5683	10226.	570.00	1411.8
10	19.51	4.18488E-05	5.8856	-0.16745	11416.	3117.6	405.23	1.4758
	1.4000	4.48257E-05	1406.4	-40.015	-1.6297	10290.	570.00	1407.0
11	24.28	4.68957E-05	6.5719	-0.16176	12786.	3153.6	406.44	1.4185
	1.4000	4.52090E-05	1401.4	-34.494	-1.4105	10301.	570.00	1401.8
12	29.57	5.18595E-05	7.2480	-0.15340	14131.	3177.5	407.34	1.413C
	1.4000	4.54498E-03	1557.6	-29.579	-1.2124	10299.	570.00	1397.9
13	35.38	5.67264E-05	7.9126	-0.12482	15451.	3191.5	409.01	1.4089
	1.4000	4.55725E-03	1394.9	-22.004	-0.90375	10284.	570.00	1395.0
14	41.70	6.15017E-03	8.58C8	-7.59916E-02	16774.	3202.7	408.48	1.4061
	1.4000	4.56826E-05	1593.0	-12.336	-0.50740	10279.	570.00	1593.0
15	48.55	6.64119E-03	9.2517	-4.46690E-02	18084.	3206.0	408.46	1.4062
	1.4000	4.57321E-03	1393.1	-6.7241	-0.27663	10292.	570.00	1393.1
16	55.88	7.12634E-03	9.9187	4.43039E-02	19401.	3213.2	403.75	1.4044
	1.4000	4.58016E-05	1391.8	6.2169	0.25592	10289.	570.00	1391.8
17	63.72	7.59497E-03	10.565	5.48427E-02	20675.	3212.0	408.94	1.4053
	1.4000	4.57629E-05	1391.0	7.2209	0.29743	10269.	570.00	1391.0
18	72.06	8.07052E-03	11.203	0.19912	21960.	3217.2	409.57	1.3995
	1.4000	4.57679E-03	1388.1	24.672	1.0183	10230.	570.00	1388.3
19	80.90	8.53900E-03	11.856	0.19197	23236.	3214.3	409.49	1.3999
	1.4000	4.57346E-03	1588.5	22.482	0.92764	10228.	570.00	1388.6
20	90.22	9.00513E-03	12.475	0.56417	24494.	3216.8	410.19	1.5957
	1.4000	4.56528E-03	1385.1	40.441	1.6724	10175.	570.00	1385.6
21	100.00	9.45874E-03	13.066	0.34897	25714.	3216.7	411.05	1.3905
	1.4000	4.55948E-03	1381.4	36.893	1.5299	10100.	570.00	1381.9

ITERATION NO.= 300 X-STATION NO.= 43 Y-INNER = 0.0001 Y-OUTER = 2.0772 OUTPUT NO. = 2

STREAMLINE %		W1	W2	W3	W4	P-STAT	TEMP(R)	MACH NO
	CP/CV	DENSITY	U	V	FLOW ANGLE	P-STAG	T-STAG	VELOCITY
1	0.0	4.02110E-07	5.85327E-04	0.0	1.1052	2716.6	393.63	1.4967
	1.4000	4.02110E-03	1455.6	0.0	0.0	9925.9	570.00	1455.6
2	0.23	4.17901E-04	0.6C825	-5.25836E-03	1148.6	2716.1	393.66	1.4966
	1.4000	4.02002E-03	1455.5	-12.583	-0.49531	9921.8	570.00	1455.5
3	0.93	8.40343E-04	1.2192	-1.52133E-02	2308.0	2739.9	394.78	1.4897
	1.4000	4.04380E-03	1450.8	-18.104	-0.71493	9909.6	570.00	1450.9
4	2.11	1.27637E-03	1.6392	-3.45754E-02	3500.4	2791.2	397.11	1.4754
	1.4000	4.09532E-03	1441.0	-27.089	-1.0778	9889.3	570.00	1441.2
5	3.76	1.72757E-03	2.4683	-6.29355E-02	4729.3	2854.1	399.98	1.4579
	1.4000	4.15760E-03	1428.8	-36.355	-1.4576	9860.6	570.00	1429.2
6	5.90	2.19715E-03	3.1146	-8.89978E-02	6004.9	2923.1	402.60	1.4419
	1.4000	4.23036E-03	1417.6	-40.506	-1.6367	9870.6	570.00	1418.2
7	6.55	2.68465E-03	3.7892	-0.12269	7330.7	2987.0	404.01	1.4333
	1.4000	4.30764E-03	1411.4	-45.700	-1.8545	9963.3	570.00	1412.2
8	11.72	3.18479E-03	4.4851	-0.14880	8692.4	3042.7	404.74	1.4288
	1.4000	4.38021E-03	1408.3	-46.721	-1.9001	10086.	570.00	1409.1
9	15.44	3.69218E-03	5.1991	-0.16935	10077.	3086.9	404.78	1.4286
	1.4000	4.44337E-03	1408.1	-45.866	-1.8656	10229.	570.00	1408.9
10	19.69	4.18587E-03	5.8930	-0.18854	11433.	3116.9	405.17	1.4262
	1.4000	4.48212E-03	1406.5	-45.000	-1.8325	10293.	570.00	1407.2
11	24.47	4.67816E-03	6.5677	-0.17643	12760.	3137.2	405.83	1.4222
	1.4000	4.50408E-03	1403.9	-37.713	-1.5388	10302.	570.00	1404.4
12	29.77	5.15984E-03	7.2341	-0.16206	14069.	3149.4	406.31	1.4193
	1.4000	4.51626E-03	1402.0	-31.407	-1.2833	10299.	570.00	1402.3
13	35.57	5.63383E-03	7.8904	-0.13039	15358.	3155.1	406.69	1.4170
	1.4000	4.52023E-03	1400.5	-23.143	-0.94670	10284.	570.00	1400.7
14	41.88	6.11755E-03	8.5520	-7.86466E-02	16655.	3160.9	406.95	1.4154
	1.4000	4.52562E-03	1399.5	-12.871	-0.52689	10280.	570.00	1399.6
15	48.69	6.58206E-03	9.2167	-4.69489E-02	17942.	3160.4	406.79	1.4164
	1.4000	4.52665E-03	1400.3	-7.1328	-0.29185	10292.	570.00	1400.3
16	56.02	7.05853E-03	9.8780	4.31069E-02	19238.	3164.8	406.98	1.4152
	1.4000	4.53073E-03	1399.4	6.1071	0.25003	10289.	570.00	1399.5
17	63.84	7.51930E-03	10.519	5.32575E-02	20492.	3161.6	407.11	1.4144
	1.4000	4.52485E-03	1398.9	7.0828	0.29004	10268.	570.00	1398.9
18	72.15	7.98761E-03	11.153	0.19742	21761.	3165.4	407.67	1.4110
	1.4000	4.52393E-03	1396.3	24.716	1.0141	10230.	570.00	1396.5
19	80.96	8.44984E-03	11.802	0.19047	23022.	3161.7	407.57	1.4116
	1.4000	4.51986E-03	1396.8	22.542	0.92459	10228.	570.00	1396.9
20	90.25	8.90945E-03	12.415	0.35963	24264.	3163.4	408.23	1.4076
	1.4000	4.51490E-03	1393.5	40.365	1.6592	10175.	570.00	1394.1
21	100.00	9.35806E-03	13.007	0.34738	25472.	3163.1	409.09	1.4024
	1.4000	4.50513E-03	1389.9	37.121	1.5299	10100.	570.00	1390.4

ITERATION NO.= 900 X-STATION NO.= 44 Y-INNER = 0.0001 Y-OUTER = 2.0799 OUTPUT NO. = 2

STREAMLINE	STREAMLINE % / CP/CV	W1 / DENSITY	W2 / U	W3 / V	W4 / FLOW ANG(D)	P-STAT / P-STAG	TEMP(R) / T-STAG	MACH NO / VELOCITY
1	0.0	4.16974E-07	5.96976E-04	0.0	1.1419	2858.3	399.59	1.4615
	1.4000	4.16974E-05	1451.7	0.0	0.0	9925.9	570.00	1451.7
2	0.24	4.33923E-04	0.62115	-7.03565E-05	1188.3	2857.8	399.42	1.4613
	1.4000	4.16875E-03	1431.5	-16.214	-0.64895	9921.7	570.00	1431.6
3	0.96	8.71047E-04	1.2456	-2.17217E-02	2384.1	2875.9	400.29	1.4560
	1.4000	4.18613E-03	1427.7	-24.937	-1.0007	9909.5	570.00	1427.9
4	2.15	1.31927E-03	1.8719	-4.73726E-02	3604.5	2915.5	402.09	1.4450
	1.4000	4.22463E-03	1419.9	-35.933	-1.4497	9888.6	570.00	1420.3
5	3.83	1.77567E-03	2.5047	-8.13909E-02	4948.1	2960.8	404.21	1.4321
	1.4000	4.26783E-03	1410.6	-45.837	-1.8612	9859.4	570.00	1411.3
6	6.00	2.24312E-03	3.1512	-0.11087	6123.6	3007.0	405.82	1.4222
	1.4000	4.31714E-03	1403.6	-49.554	-2.0151	9874.3	570.00	1404.4
7	8.68	2.72636E-03	3.8216	-0.14475	7434.5	3046.0	406.23	1.4198
	1.4000	4.36890E-03	1401.7	-53.092	-2.1691	9968.0	570.00	1402.7
8	11.88	3.21500E-03	4.5105	-0.16822	8768.2	3076.8	405.95	1.4214
	1.4000	4.41605E-03	1402.9	-52.355	-2.1372	10092.	570.00	1403.9
9	15.62	3.70760E-03	5.2137	-0.18577	10116.	3099.0	405.20	1.4260
	1.4000	4.45617E-03	1406.2	-49.566	-2.0187	10231.	570.00	1407.1
10	19.89	4.18964E-03	5.8971	-0.19724	11434.	3110.6	404.91	1.4278
	1.4000	4.47609E-03	1407.6	-47.079	-1.9157	10296.	570.00	1408.3
11	24.67	4.66292E-03	6.5610	-0.18055	12724.	3117.2	405.09	1.4267
	1.4000	4.48369E-03	1407.0	-38.720	-1.5765	10302.	570.00	1407.6
12	29.96	5.13155E-03	7.2185	-0.16227	14002.	3119.6	405.21	1.4260
	1.4000	4.48569E-03	1406.7	-31.622	-1.2878	10299.	570.00	1407.1
13	35.76	5.59429E-03	7.8675	-0.12931	15265.	3118.5	405.34	1.4252
	1.4000	4.49267E-03	1406.5	-23.114	-0.94163	10284.	570.00	1406.5
14	42.05	6.06118E-03	8.5227	-7.62166E-02	16536.	3119.5	405.42	1.4247
	1.4000	4.48325E-03	1406.1	-12.575	-0.51297	10280.	570.00	1406.2
15	48.85	6.52385E-03	9.1814	-4.49942E-02	17802.	3115.7	405.13	1.4264
	1.4000	4.48022E-03	1407.4	-6.8969	-0.28076	10292.	570.00	1407.4
16	56.16	6.99216E-03	9.6373	4.49607E-02	19078.	3117.5	405.24	1.4258
	1.4000	4.48232E-03	1406.9	6.4502	0.26186	10289.	570.00	1406.9
17	63.96	7.44551E-03	10.473	5.45453E-02	20314.	3112.7	405.50	1.4256
	1.4000	4.47465E-03	1406.6	7.3259	0.29840	10267.	570.00	1406.7
18	72.24	7.90691E-03	11.105	0.19726	21566.	3115.0	405.81	1.4273
	1.4000	4.47243E-03	1404.3	24.967	1.0178	10230.	570.00	1404.5
19	81.02	8.36319E-03	11.749	0.19060	22815.	3110.8	405.68	1.4231
	1.4000	4.46775E-03	1404.8	22.790	0.92940	10228.	570.00	1405.0
20	90.28	8.81663E-03	12.359	0.35573	24040.	3111.7	406.32	1.4192
	1.4000	4.46209E-03	1401.7	40.347	1.6687	10175.	570.00	1402.3
21	100.00	9.26035E-03	12.948	0.34580	25256.	3111.3	407.14	1.4161
	1.4000	4.45233E-03	1398.2	37.942	1.5299	10100.	570.00	1398.7

ITERATION NO.= 300   X-STATION NO.= 45   Y-INNER = 0.0001   Y-OUTER = 2.0826   OUTPUT NO. = 2

STREAMLINE	% / CP/CV	W1 / DENSITY	W2 / U	W3 / V	W4 / FLOW ANG(D)	P-STAT / P-STAG	TEMP(R) / T-STAG	MACH NO / VELOCITY
1	0.0	4.34911E-07	6.10148E-04	0.0	1.1860	3031.9	406.18	1.4201
	1.4000	4.34911E-03	1402.9	0.0	0.0	9925.9	570.00	1402.9
2	0.24	4.53178E-04	0.63565	-8.49291E-03	1235.7	3031.4	406.21	1.4199
	1.4000	4.34814E-03	1402.7	-18.741	-0.76548	9921.6	570.00	1402.8
3	0.98	9.07236E-04	1.2706	-2.69512E-02	2473.2	3039.1	406.65	1.4172
	1.4000	4.35445E-03	1400.6	-29.707	-1.2151	9908.9	570.00	1400.9
4	2.20	1.36585E-03	1.9068	-5.70455E-02	3721.1	3058.1	407.62	1.4113
	1.4000	4.37113E-03	1396.1	-41.766	-1.7136	9887.7	570.00	1396.7
5	3.91	1.82720E-03	2.5421	-9.42874E-02	4974.8	3076.4	408.67	1.4049
	1.4000	4.35604E-03	1391.2	-51.602	-2.1242	9858.0	570.00	1392.2
6	6.11	2.29363E-03	3.1872	-0.12452	6243.2	3092.3	409.04	1.4027
	1.4000	4.40475E-03	1389.6	-54.289	-2.2373	9870.1	570.00	1390.6
7	8.82	2.76603E-03	3.8522	-0.15698	7532.6	3102.1	408.29	1.4072
	1.4000	4.42677E-03	1392.7	-56.754	-2.3336	9972.9	570.00	1393.8
8	12.05	3.24176E-03	4.5332	-0.17771	8835.4	3106.3	406.98	1.4152
	1.4000	4.44707E-03	1398.4	-54.818	-2.2449	10099.	570.00	1399.5
9	15.80	3.71945E-03	5.2260	-0.18937	10147.	3107.0	405.47	1.4244
	1.4000	4.46466E-03	1405.0	-50.832	-2.0720	10234.	570.00	1406.0
10	20.08	4.18683E-03	5.8993	-0.19871	11429.	3101.9	404.56	1.4299
	1.4000	4.46733E-03	1409.0	-47.461	-1.9292	10298.	570.00	1409.8
11	24.87	4.64639E-03	6.5533	-0.17958	12685.	3096.2	404.30	1.4315
	1.4000	4.46196E-03	1410.4	-38.649	-1.5697	10302.	570.00	1410.9
12	30.14	5.10314E-03	7.2025	-0.15926	13934.	3090.0	404.11	1.4327
	1.4000	4.45511E-03	1411.4	-31.208	-1.2667	10290.	570.00	1411.7
13	35.94	5.55543E-03	7.8443	-0.12647	15170.	3082.7	404.01	1.4333
	1.4000	4.44584E-03	1412.0	-22.765	-0.92368	10283.	570.00	1412.2
14	42.23	6.01313E-03	8.4937	-7.26182E-02	16421.	3079.4	403.91	1.4339
	1.4000	4.44198E-03	1412.5	-12.077	-0.48905	10280.	570.00	1412.6
15	49.01	6.46737E-03	9.1465	-4.29670E-02	17665.	3072.4	403.51	1.4363
	1.4000	4.43630E-03	1414.3	-6.6437	-0.26915	10293.	570.00	1414.3
16	56.29	6.92778E-03	9.7970	4.75187E-02	18923.	3071.9	403.54	1.4361
	1.4000	4.43534E-03	1414.2	6.8591	0.27790	10289.	570.00	1414.2
17	64.07	7.37401E-03	10.428	5.52495E-02	20142.	3065.4	403.54	1.4361
	1.4000	4.42598E-03	1414.1	7.4919	0.30354	10267.	570.00	1414.2
18	72.33	7.82874E-03	11.054	0.19793	21377.	3066.5	404.00	1.4333
	1.4000	4.42252E-03	1412.0	25.292	1.0258	10230.	570.00	1412.2
19	81.00	8.27930E-03	11.696	0.19022	22610.	3061.7	403.84	1.4343
	1.4000	4.41722E-03	1412.7	22.975	0.93174	10227.	570.00	1412.9
20	90.31	8.72690E-03	12.302	0.35301	23823.	3062.0	404.46	1.4306
	1.4000	4.41099E-03	1409.7	40.450	1.6436	10174.	570.00	1410.3
21	100.00	9.16594E-03	12.809	0.34424	25009.	3061.5	405.29	1.4255
	1.4000	4.40127E-03	1406.2	37.557	1.5299	10100.	570.00	1406.7

ITERATION NO.= 300 X-STATION NO.= 46 Y-INNER = 0.0001 Y-OUTER = 2.0852 OUTPUT NO. = 2

	STREAMLINE % CP/CV	W1 DENSITY	W2 U	W3 V	W4 FLOW ANG(D)	P-STAT P-STAG	TEMP(R) T-STAG	MACH NO VELOCITY
1	0.0	4.53509E-07	6.23035E-04	0.0	1.2323	3218.9	413.18	1.3776
	1.4000	4.33909E-03	1372.6	0.0	0.0	9923.9	570.00	1372.6
2	0.25	4.7260CE-04	C.64592	-8.90627E-03	1285.7	3218.6	413.22	1.3773
	1.4000	4.53825E-03	1372.3	-18.803	-0.78512	9921.5	570.00	1372.4
3	1.00	9.43144E-04	1.2921	-2.96479E-02	2566.0	3212.7	413.16	1.3777
	1.4000	4.33056E-03	1372.4	-30.311	-1.2653	9909.5	570.00	1372.7
4	2.23	1.41435E-03	1.9406	-5.94217E-02	3839.9	3205.5	413.16	1.3777
	1.4000	4.52054E-03	1372.1	-42.013	-1.7339	9886.9	570.00	1372.7
5	3.99	1.57828E-03	2.3777	-9.36326E-02	5099.8	3191.9	413.01	1.3786
	1.4000	4.30286E-03	1372.4	-33.915	-2.1247	9836.7	570.00	1373.3
6	6.22	2.34028E-03	3.2213	-0.12351	6355.0	3174.5	412.07	1.3843
	1.4000	4.48855E-03	1376.5	-52.778	-2.1958	9881.8	570.00	1377.5
7	8.95	2.90309E-03	3.6812	-0.15238	7624.5	3154.1	410.18	1.3958
	1.4000	4.48032E-03	1384.6	-54.360	-2.2463	9977.5	570.00	1385.7
8	12.20	3.26600E-03	4.5549	-0.16968	8896.3	3122.4	407.88	1.4097
	1.4000	4.47457E-03	1394.6	-51.934	-2.1336	10106.	370.00	1395.6
9	13.97	3.72933E-03	5.2375	-0.17773	10173.	3112.8	405.66	1.4233
	1.4000	4.47101E-03	1404.3	-47.636	-1.9436	10237.	570.00	1405.1
10	20.26	4.18319E-03	5.9010	-0.18433	11422.	3092.7	404.22	1.4320
	1.4000	4.45792E-03	1410.6	-44.062	-1.7892	10298.	370.00	1411.3
11	25.06	4.63041E-03	6.5462	-0.16446	12648.	3073.7	403.53	1.4362
	1.4000	4.44089E-03	1413.7	-35.517	-1.4391	10302.	370.00	1414.2
12	30.34	3.07616E-03	7.1873	-0.14361	13869.	3061.7	403.06	1.4391
	1.4000	4.42596E-03	1415.9	-28.291	-1.1446	10298.	570.00	1416.2
13	36.12	3.51861E-03	7.8224	-0.11204	15081.	3048.7	402.73	1.4411
	1.4000	4.41069E-03	1417.5	-20.302	-0.82060	10283.	370.00	1417.6
14	42.40	5.96746E-03	8.4658	-3.95818E-02	16311.	3041.2	402.47	1.4426
	1.4000	4.40260E-03	1418.7	-9.9844	-0.40324	10281.	570.00	1418.7
15	49.16	6.41332E-03	9.1128	-3.13932E-02	17533.	3031.1	401.96	1.4438
	1.4000	4.39371E-03	1420.9	-4.8949	-0.19738	10293.	570.00	1420.9
16	56.43	6.86527E-03	9.7577	5.59777E-02	18774.	3028.3	401.90	1.4462
	1.4000	4.35030E-03	1421.1	8.1526	0.32869	10289.	570.00	1421.1
17	64.19	7.30339E-03	10.384	6.35036E-02	19976.	3020.3	401.84	1.4465
	1.4000	4.37927E-03	1421.3	9.6932	0.35043	10266.	570.00	1421.4
18	72.42	[illegible]	11.006	0.20092	21196.	3020.1	402.24	1.4440
	1.4000	4.37459E-03	1419.4	25.913	1.0459	10230.	370.00	1419.7
19	81.14	8.19887E-03	11.644	0.19416	22415.	3014.7	402.66	1.4431
	1.4000	4.36869E-03	1420.2	23.681	0.93529	10227.	570.00	1420.4
20	90.34	8.64085E-03	12.247	0.34980	23615.	3014.4	402.43	1.4415
	1.4000	4.36188E-03	1417.4	40.482	1.6360	10174.	370.00	1417.9
21	100.00	9.07530E-03	12.832	0.34271	24790.	3013.8	403.47	1.4366
	1.4000	4.33214E-03	1414.0	37.763	1.3299	10100.	370.00	1414.5

ITERATION NO.= 300   X-STATION NO.= 47   Y-INNER = 0.0001   Y-OUTER = 2.0879   OUTPUT NO. = 2

STREAMLINE & CP/CV		W1 DENSITY	W2 U	W3 V	W4 FLOW ANG(D)	P-STAT P-STAG	TEMP(R) T-STAG	MACH NO VELOCITY
1	0.0	4.71829E-07	6.34175E-04	0.0	1.2757	3398.2	419.63	1.3385
	1.4000	4.71829E-03	1344.1	0.0	0.0	9925.9	570.00	1344.1
2	0.26	4.92957E-04	0.66239	-8.69069E-03	1332.8	3398.0	419.68	1.3383
	1.4000	4.71749E-03	1343.8	-17.631	-0.75171	9921.5	570.00	1343.9
3	1.02	9.81059E-04	1.3204	-2.81437E-02	2653.3	3378.7	419.16	1.3414
	1.4000	4.69659E-03	1345.9	-25.688	-1.2211	9908.2	570.00	1346.2
4	2.29	1.46016E-03	1.9707	-5.77565E-02	3951.4	3345.9	419.25	1.3469
	1.4000	4.66096E-03	1349.6	-39.555	-1.6787	9886.2	570.00	1350.2
5	4.06	1.92657E-03	2.6101	-9.25132E-02	5217.7	3301.6	417.03	1.3542
	1.4000	4.61271E-03	1354.8	-47.916	-2.0256	9855.5	570.00	1355.6
6	6.52	2.38475E-03	3.2550	-0.11818	6467.2	3252.9	414.91	1.3671
	1.4000	4.56798E-03	1364.1	-49.555	-2.0805	9885.1	570.00	1365.0
7	9.08	2.83939E-03	3.9089	-0.14414	7719.5	3204.7	412.00	1.3847
	1.4000	4.55203E-03	1376.8	-51.474	-2.1411	9991.8	570.00	1377.8
8	12.55	3.29047E-03	4.5763	-0.16353	8958.0	3158.9	408.79	1.4042
	1.4000	4.50251E-03	1390.8	-49.697	-2.0465	10112.	570.00	1391.7
9	16.14	3.74096E-03	5.2498	-0.17191	10203.	3120.3	405.90	1.4217
	1.4000	4.47895E-03	1403.3	-45.955	-1.8756	10239.	570.00	1404.1
10	20.44	4.18210E-03	5.9040	-0.17985	11420.	3085.8	403.96	1.4336
	1.4000	4.45082E-05	1411.7	-43.005	-1.7449	10298.	570.00	1412.4
11	25.24	4.61721E-03	6.5407	-0.16124	12617.	3058.0	402.87	1.4402
	1.4000	4.42256E-03	1416.6	-14.922	-1.4122	10302.	570.00	1417.0
12	30.52	5.05218E-03	7.1742	-0.14158	13812.	3036.0	402.09	1.4450
	1.4000	4.39930E-03	1420.0	-28.023	-1.1305	10297.	570.00	1420.3
13	36.30	5.48481E-03	7.8021	-0.11247	15000.	3017.2	401.54	1.4483
	1.4000	4.37805E-03	1422.5	-20.542	-0.82737	10283.	570.00	1422.6
14	42.56	5.92467E-03	8.4393	-5.90716E-02	16208.	3005.2	401.10	1.4510
	1.4000	4.36540E-03	1424.4	-9.9704	-0.40104	10281.	570.00	1424.5
15	49.31	6.36243E-03	9.0803	-3.48909E-02	17412.	2992.0	400.46	1.4549
	1.4000	4.35312E-03	1427.2	-5.4839	-0.22016	10293.	570.00	1427.2
16	56.56	6.80734E-03	9.7195	9.65860E-02	18631.	2986.6	400.31	1.4558
	1.4000	4.34704E-03	1427.8	8.3125	0.33357	10289.	570.00	1427.8
17	64.30	7.23978E-03	10.341	5.85872E-02	19817.	2977.0	400.19	1.4566
	1.4000	4.33425E-05	1428.3	8.0648	0.32351	10246.	570.00	1428.3
18	72.51	7.68153E-03	10.959	0.20198	21021.	2975.4	400.53	1.4545
	1.4000	4.32822E-03	1426.6	26.294	1.0529	10230.	570.00	1426.9
19	81.20	8.12101E-03	11.593	0.19019	22727.	2969.4	400.33	1.4557
	1.4000	4.32165E-03	1427.5	23.419	0.93985	10227.	570.00	1427.7
20	90.37	8.55761E-03	12.193	0.35011	23419.	2960.5	400.89	1.4525
	1.4000	4.31431E-03	1424.8	40.912	1.6449	10174.	570.00	1425.4
21	100.00	8.98784E-03	12.776	0.54120	24578.	2967.8	401.70	1.4473
	1.4000	4.30467E-03	1421.4	57.963	1.5299	10100.	570.00	1421.9

ITERATION NO.= 305 X-STATION NO.= 48 Y-INNER = 0.0001 Y-OUTER = 2.0906 OUTPUT NO. = 2

	STREAMLINE % CP/CV	W1 DENSITY	W2 U	W3 V	W4 FLOW ANG(D)	P-STAT P-STAG	TEMP(F) T-STAG	MACH NO VELOCITY
1	0.0	4.86665E-07	6.42642E-04	0.0	1.3115	3548.7	424.86	1.3069
	1.4000	4.86665E-03	1320.5	0.0	0.0	9925.9	570.00	1320.5
2	0.26	5.09147E-04	0.67214	-6.39382E-03	1372.0	3549.1	424.93	1.3065
	1.4000	4.86638E-03	1320.1	-12.558	-0.54501	9921.4	570.00	1320.2
3	1.04	1.01111E-03	1.3388	-2.06999E-02	2726.2	3518.3	424.04	1.3119
	1.4000	4.83435E-03	1324.1	-20.472	-0.88581	9907.9	570.00	1324.2
4	2.32	1.49920E-03	1.9954	-4.27851E-02	4046.2	3465.6	422.48	1.3213
	1.4000	4.77944E-03	1331.0	-28.205	-1.2140	9885.6	570.00	1331.3
5	4.11	1.96890E-03	2.6381	-6.68765E-02	5320.7	3397.6	420.48	1.3334
	1.4000	4.70801E-03	1339.9	-33.941	-1.4511	9854.5	570.00	1340.3
6	6.40	2.42524E-03	3.2821	-8.44803E-02	6566.4	3324.2	417.45	1.3517
	1.4000	4.63959E-03	1353.3	-34.834	-1.4744	9888.0	570.00	1353.8
7	9.18	2.87351E-03	3.9361	-0.10370	7790.6	3252.9	413.71	1.3743
	1.4000	4.58110E-03	1369.8	-36.116	-1.5103	9985.5	570.00	1370.3
8	12.48	3.31553E-03	4.5992	-0.11501	9020.8	3186.2	409.74	1.3984
	1.4000	4.53078E-03	1387.2	-34.688	-1.4325	10117.	570.00	1387.6
9	16.29	3.75463E-03	5.2649	-0.11968	10238.	3130.4	406.25	1.4196
	1.4000	4.48956E-03	1402.2	-31.876	-1.3023	10242.	570.00	1402.6
10	20.60	4.18403E-03	5.9106	-0.12328	11426.	3082.3	403.82	1.4344
	1.4000	4.44717E-03	1412.6	-29.465	-1.1949	10298.	570.00	1413.0
11	25.41	4.60771E-03	6.5308	-0.10571	12595.	3043.7	402.33	1.4435
	1.4000	4.40780E-03	1419.1	-22.941	-0.92617	10302.	570.00	1419.3
12	30.70	5.03213E-03	7.1644	-8.73900E-02	13765.	3013.8	401.26	1.4501
	1.4000	4.37623E-03	1423.7	-17.366	-0.69885	10297.	570.00	1423.8
13	36.47	5.45467E-03	7.7947	-6.05205E-02	14928.	2988.7	400.46	1.4550
	1.4000	4.34841E-03	1427.2	-11.095	-0.44542	10282.	570.00	1427.2
14	42.72	5.88353E-03	8.4133	-1.50009E-02	16113.	2972.1	399.83	1.4580
	1.4000	4.33103E-03	1429.8	-2.5488	-0.10213	10281.	570.00	1429.8
15	49.46	6.31459E-03	9.0496	9.59120E-03	17297.	2955.2	399.05	1.4636
	1.4000	4.31485E-03	1433.1	1.5109	6.07246E-02	10293.	570.00	1433.1
16	56.69	6.75179E-03	9.6829	8.48388E-02	18497.	2947.3	398.80	1.4651
	1.4000	4.30604E-03	1434.1	12.573	0.50229	10288.	570.00	1434.2
17	64.41	7.17705E-03	10.299	9.31435E-02	19664.	2935.7	398.60	1.4663
	1.4000	4.29119E-03	1434.9	12.978	0.51819	10265.	570.00	1435.0
18	72.59	7.61223E-03	10.912	0.21271	20853.	2932.6	398.88	1.4646
	1.4000	4.28367E-03	1433.5	27.944	1.1167	10230.	570.00	1433.8
19	81.26	8.04600E-03	11.543	0.20888	22045.	2925.8	398.64	1.4660
	1.4000	4.27624E-03	1434.6	25.961	1.0367	10227.	570.00	1434.8
20	90.40	8.47632E-03	12.139	0.34346	23216.	2923.9	399.17	1.4628
	1.4000	4.26785E-03	1432.1	40.520	1.6208	10174.	570.00	1432.6
21	100.00	8.90154E-03	12.719	0.33960	24369.	2922.0	399.95	1.4580
	1.4000	4.25787E-03	1428.8	38.160	1.5299	10100.	570.00	1429.3

ITERATION NO.= 300 X-STATION NO.= 49 Y-INNER = 0.0001 Y-OUTER = 2.0939 OUTPUT NO. = 2

STREAMLINE	%	W1	W2	W3	W4	P-STAT	TEMP(R)	MACH NO
	CP/CV	DENSITY	U	V	FLOW ANG(D)	P-STAG	T-STAG	VELOCITY
1	0.0	5.01328E-07	6.50328E-04	0.0	1.3466	3699.3	429.94	1.2763
	1.4000	5.01328E-03	1297.2	0.0	0.0	9925.9	570.00	1297.2
2	0.26	5.25172E-04	0.48106	-5.27129E-03	1410.6	3699.8	430.01	1.2758
	1.4000	5.01312E-03	1296.8	-10.037	-0.44345	9921.3	570.00	1296.9
3	1.05	1.04192E-03	1.3562	-1.82232E-02	2800.5	3662.8	429.94	1.2823
	1.4000	4.97531E-03	1301.7	-17.490	-0.76981	9907.6	570.00	1301.8
4	2.36	1.54155E-03	2.0201	-3.93774E-02	4140.5	3597.1	427.01	1.2939
	1.4000	4.90816E-03	1310.4	-24.895	-1.0884	9885.0	570.00	1310.7
5	4.17	2.01517E-03	2.6679	-6.46909E-02	5440.0	3511.1	424.45	1.3094
	1.4000	4.81965E-03	1322.0	-32.054	-1.3890	9853.6	570.00	1322.5
6	6.48	2.47717E-03	3.3161	-8.46167E-02	6693.1	3417.7	420.74	1.3318
	1.4000	4.73287E-03	1338.7	-34.159	-1.4617	9890.9	570.00	1339.1
7	9.30	2.92376E-03	3.9713	-0.11319	7921.9	3326.3	416.31	1.3586
	1.4000	4.65524E-03	1358.3	-38.713	-1.6326	9989.6	570.00	1358.8
8	12.62	3.35883E-03	4.6321	-0.13643	9128.1	3238.0	411.56	1.3874
	1.4000	4.58407E-03	1379.1	-40.619	-1.6871	10123.	570.00	1379.7
9	16.46	3.78730E-03	5.2910	-0.15247	10320.	3162.6	407.41	1.4126
	1.4000	4.52282E-03	1397.0	-40.259	-1.6506	10244.	570.00	1397.6
10	20.80	4.20270E-03	5.9266	-0.17189	11474.	3096.0	404.33	1.4313
	1.4000	4.46130E-03	1410.2	-40.899	-1.6613	10298.	570.00	1410.8
11	25.62	4.61055E-03	6.5437	-0.16147	12604.	3040.9	402.23	1.4441
	1.4000	4.40487E-03	1419.3	-35.023	-1.4135	10302.	570.00	1419.7
12	30.91	5.02011E-03	7.1585	-0.14829	13737.	2998.4	400.68	1.4556
	1.4000	4.36019E-03	1426.0	-29.539	-1.1867	10296.	570.00	1426.3
13	36.68	5.42691E-03	7.7674	-0.12874	14861.	2962.1	399.44	1.4612
	1.4000	4.32075E-03	1431.3	-23.723	-0.94958	10282.	570.00	1431.5
14	42.93	5.84507E-03	8.3893	-7.05998E-02	16016.	2938.2	398.52	1.4668
	1.4000	4.29572E-03	1435.3	-12.079	-0.48216	10282.	570.00	1435.3
15	49.65	6.26054E-03	9.0133	-5.92611E-02	17165.	2914.5	397.47	1.4732
	1.4000	4.27244E-03	1439.7	-9.4658	-0.37671	10294.	570.00	1439.7
16	56.86	6.68841E-03	9.6398	4.91178E-02	18343.	2953.4	397.09	1.4755
	1.4000	4.26016E-03	1441.3	7.3437	0.29194	10288.	570.00	1441.3
17	64.55	7.10249E-03	10.247	3.17935E-02	19483.	2888.0	396.75	1.4776
	1.4000	4.24117E-03	1442.7	4.4764	0.17777	10265.	570.00	1442.7
18	72.71	7.52683E-03	10.854	0.20170	20650.	2882.6	396.93	1.4765
	1.4000	4.23132E-03	1441.7	26.790	1.0645	10229.	570.00	1442.0
19	81.34	7.95592E-03	11.480	0.17395	21825.	2874.9	396.65	1.4782
	1.4000	4.22295E-03	1443.0	21.864	0.86810	10227.	570.00	1443.1
20	90.44	9.37593E-03	12.071	0.35646	22981.	2872.3	397.15	1.4752
	1.4000	4.21392E-03	1440.4	42.537	1.6915	10173.	570.00	1441.1
21	100.00	8.80041E-03	12.649	0.33782	24122.	2871.2	397.92	1.4704
	1.4000	4.20411E-03	1437.3	38.387	1.5299	10100.	570.00	1437.8

ITERATION NO.= 300   X-STATION NO.= 55   Y-INNER = 0.0001   Y-OUTER = 2.0960   OUTPUT NO. = 2

	STREAMLINE & CP/CV	W1 DENSITY	W2 U	W3 V	W4 FLOW ANG(O)	P-STAT P-STAG	TEMP(P) T-STAG	MACH NO VELOCITY
1	0.0	5.15982E-07	6.57322E-04	0.0	1.3816	3851.6	434.92	1.2462
	1.4000	5.15981E-03	1273.9	0.0	0.0	9925.9	570.00	1273.9
2	0.27	5.41935E-04	0.68960	6.04602E-04	1455.8	3859.3	435.23	1.2443
	1.4000	5.16653E-03	1272.5	1.1156	5.02337E-02	9921.3	570.00	1272.5
3	1.07	1.07388E-03	1.3730	2.65115E-03	2877.2	3814.3	433.94	1.2521
	1.4000	5.12136E-03	1278.5	2.4689	0.11064	9907.4	570.00	1278.5
4	2.39	1.58599E-03	2.0444	6.18532E-03	4255.2	3736.2	431.67	1.2658
	1.4000	5.04289E-03	1289.1	3.9002	0.17334	9884.4	570.00	1289.1
5	4.22	2.06863E-03	2.6975	1.25949E-02	5561.8	3628.2	429.46	1.2852
	1.4000	4.93383E-03	1304.0	6.0885	0.26752	9852.6	570.00	1304.0
6	6.57	2.53063E-03	3.3506	2.07609E-02	6923.0	3514.7	424.08	1.3116
	1.4000	4.82882E-03	1324.0	8.2038	0.35501	9993.9	570.00	1324.0
7	9.41	2.57691E-03	4.0089	3.09616E-02	8052.0	3404.6	419.04	1.3421
	1.4000	4.73381E-03	1346.7	10.401	0.44250	9993.6	570.00	1346.7
8	12.77	3.40412E-03	4.6681	4.45745E-02	9249.1	3292.6	413.46	1.3759
	1.4000	4.63994E-03	1371.3	13.095	0.54711	10129.	570.00	1371.4
9	16.64	3.82386E-03	5.3223	5.71404E-02	10411.	3199.3	408.73	1.4046
	1.4000	4.56054E-03	1391.9	14.943	0.61510	10247.	570.00	1391.9
10	21.00	4.22377E-03	5.9476	7.49114E-02	11527.	3112.1	404.93	1.4276
	1.4000	4.47794E-03	1408.1	17.736	0.72162	10298.	570.00	1408.2
11	25.84	4.61309E-03	6.5508	9.45695E-02	12611.	3037.7	402.11	1.4449
	1.4000	4.40158E-03	1420.1	20.500	0.82704	10301.	570.00	1420.2
12	31.15	5.00981E-03	7.1556	0.11032	13713.	2984.5	400.15	1.4568
	1.4000	4.34567E-03	1428.3	22.071	0.88330	10295.	570.00	1428.5
13	36.92	5.39555E-03	7.7470	0.13498	14786.	2933.0	398.32	1.4680
	1.4000	4.29028E-03	1436.0	25.010	0.99813	10287.	570.00	1436.2
14	43.15	5.80610E-03	8.3632	0.14932	15922.	2905.6	397.25	1.4746
	1.4000	4.26162E-03	1440.4	25.718	1.0229	10282.	570.00	1440.7
15	49.86	6.20105E-03	8.9706	0.17097	17021.	2870.7	395.74	1.4838
	1.4000	4.22643E-03	1446.6	28.861	1.1430	10294.	570.00	1446.9
16	57.05	6.62004E-03	9.5961	0.19111	18196.	2861.7	395.46	1.4855
	1.4000	4.21631E-03	1447.8	28.834	1.1409	10288.	570.00	1448.1
17	64.71	7.02257E-03	10.187	0.22747	19287.	2837.6	394.77	1.4898
	1.4000	4.18409E-03	1450.6	32.392	1.2792	10264.	570.00	1451.0
18	72.83	7.44345E-03	10.792	0.25475	20441.	2831.9	394.92	1.4888
	1.4000	4.17798E-03	1449.9	34.225	1.3522	10229.	570.00	1450.3
19	81.42	7.86427E-03	11.412	0.27809	21601.	2823.6	394.62	1.4907
	1.4000	4.16897E-03	1451.1	35.361	1.3959	10227.	570.00	1451.6
20	90.49	8.28099E-03	12.001	0.32192	22739.	2819.9	395.07	1.4879
	1.4000	4.15984E-03	1449.2	38.874	1.5366	10173.	570.00	1449.7
21	100.00	8.70058E-03	12.578	0.33760	23879.	2820.7	395.91	1.4828
	1.4000	4.15110E-03	1445.7	38.802	1.5374	10100.	570.00	1446.2

ITERATION NO.= 300

DISCHARGE(CD),THRUST(VD),AND PRESSURE(PO)-COEFFICIENTS

	WF	WF/WF*	WF/WFI	VD	VD/VD*	VD/VD-1	PD	THRUST(LBF)	
	2736.5	0.99843	0.96068	10169.	0.38698	0.34129	69382.	2.49917E 05	1
	2532.0	0.92397	0.88903	10400.	0.39610	0.34933	65244.	2.37669E 05	2
	2604.9	0.95042	0.91448	12531.	0.47668	0.42057	61681.	2.33144E 05	3
	2863.9	1.04364	1.00609	12953.	0.49295	0.43474	60433.	2.30612E 05	4
	2641.7	0.96382	0.92737	12994.	0.49451	0.43612	57230.	2.20616E 05	5
	2844.4	1.03778	0.99853	14015.	0.53337	0.47039	34925.	2.16583E 05	6
	2784.3	1.01569	0.97746	13337.	0.51390	0.45499	53410.	2.10983E 05	7
	2715.3	0.99068	0.93322	13357.	0.50832	0.44629	51326.	2.03207E 05	8
	2733.7	0.99740	0.95968	14115.	0.53714	0.47372	48693.	1.97317E 05	9
	2738.8	0.99927	0.96148	14882.	0.56634	0.49944	46111.	1.91616E 05	10
	2738.8	0.99925	0.96146	13458.	0.59589	0.32552	43574.	1.86084E 05	11
	2738.2	0.99506	0.96126	16524.	0.62863	0.55438	41006.	1.80733E 03	12
	2739.1	0.99937	0.96158	17528.	0.66703	0.58827	38385.	1.75657E 05	13
	2736.4	0.99912	0.96134	16673.	0.71071	0.62679	35665.	1.70714E 05	16
	2742.1	1.00345	0.96262	20114.	0.76544	0.67506	32822.	1.66309E 05	15
	2743.7	1.00104	0.96318	22069.	0.83951	0.74038	29459.	1.61851E 03	16
THRUAT	2740.8	1.00090	0.96219	26277.	1.0000	0.88192	24202.	1.58586E 05	17
	2749.5	1.00315	0.96522	26995.	1.1034	0.97312	21676.	1.39187E 05	18
	2768.9	1.01026	0.97205	31085.	1.1830	1.0433	19863.	1.60059E 05	19
	2760.0	1.00700	0.96892	32929.	1.2331	1.1052	17889.	1.59648E 05	20
	2742.5	1.00062	0.96278	34202.	1.3016	1.1479	16407.	1.56995E 05	21
	2737.3	0.99878	0.96101	34893.	1.3279	1.1711	15690.	1.58912E 05	22
	2737.1	0.99865	0.96088	33248.	1.3414	1.1830	15370.	1.59019E 05	23
	2737.2	0.99867	0.96091	35508.	1.3513	1.1917	15147.	1.59136E 05	24
	2737.1	0.99866	0.96059	35715.	1.3592	1.1987	14976.	1.59252E 05	25
	2737.1	0.99864	0.96068	35863.	1.3655	1.2043	14847.	1.59372E 05	26
	2737.1	0.99862	0.96086	36025.	1.3709	1.2091	14745.	1.59497E 05	27
	2737.0	0.99860	0.96084	36132.	1.3758	1.2133	14660.	1.59629E 05	28
	2736.9	0.99858	0.96082	36272.	1.3904	1.2174	14583.	1.59765E 05	29
	2736.9	0.99856	0.96080	36391.	1.3849	1.2214	14508.	1.59904E 05	30
	2736.8	0.99834	0.96078	36512.	1.3895	1.2254	14432.	1.60043E 05	31
	2736.8	0.99853	0.96077	36634.	1.3942	1.2295	14353.	1.60183E 05	32
	2736.7	0.99851	0.96075	36760.	1.3969	1.2337	14272.	1.60320E 05	33
	2736.7	0.99850	0.96074	36886.	1.4037	1.2360	14189.	1.60455E 05	34
	2736.7	0.99848	0.96073	37012.	1.4065	1.2422	14105.	1.60568E 05	35
	2736.6	0.99847	0.96072	37138.	1.4133	1.2464	14020.	1.60718E 05	36
	2736.6	0.99847	0.96071	37264.	1.4181	1.2506	13935.	1.60846E 05	37
	2736.6	0.99846	0.96070	37387.	1.4228	1.2548	13852.	1.60971E 05	38
	2736.6	0.99846	0.96070	37508.	1.4274	1.2589	13769.	1.61093E 05	39
	2736.6	0.99845	0.96070	37627.	1.4319	1.2628	13689.	1.61214E 05	40
	2736.6	0.99846	0.96070	37741.	1.4363	1.2667	13612.	1.61331E 05	41
	2736.6	0.99846	0.96071	37852.	1.4405	1.2704	13536.	1.61447E 05	42
	2736.6	0.99847	0.96071	37958.	1.4445	1.2739	13468.	1.61561E 05	43
	2736.7	0.99849	0.96073	38059.	1.4484	1.2773	13403.	1.61674E 05	44
	2736.7	0.99850	0.96074	38153.	1.4520	1.2805	13344.	1.61783E 05	45
	2736.8	0.99852	0.96076	38243.	1.4554	1.2835	13289.	1.61893E 05	46
	2736.6	0.99832	0.96076	38325.	1.4585	1.2863	13240.	1.61996E 05	47
	2736.9	0.99857	0.96081	38407.	1.4616	1.2890	13194.	1.62109E 05	48
	2736.7	0.99851	0.96075	38471.	1.4641	1.2912	13156.	1.62192E 05	49
	2736.4	0.99837	0.96062	38530.	1.4563	1.2932	13120.	1.62265E 05	50

AXIS ITERATION NO= 0

STREAMLINE %	W1	W2	W3	W4	P-STAT	TEMP(R)	MACH NO
CP/CV	DENSITY	U	V	FLOW ANG(D)	P-STAG	T-STAG	VELOCITY
1 0.0	9.72995E-07	3.28202E-04	0.0	2.3955	9360.6	569.53	0.29065
1.4000	9.72995E-03	337.31	0.0	0.0	9925.9	570.00	337.31
2 0.0	9.68284E-07	3.44851E-04	0.0	2.3857	9297.2	559.44	0.30718
1.4000	9.68284E-03	356.15	0.0	0.0	9925.9	570.00	356.15
3 0.0	9.63058E-07	3.62111E-04	0.0	2.3748	9227.0	558.23	0.32465
1.4000	9.63058E-03	376.00	0.0	0.0	9925.9	570.00	376.00
4 0.0	9.57255E-07	3.79981E-04	0.0	2.3627	9149.3	556.89	0.34315
1.4000	9.57255E-03	396.95	0.0	0.0	9925.9	570.00	396.95
5 0.0	9.50757E-07	3.98608E-04	0.0	2.3492	9062.5	555.37	0.36293
1.4000	9.50757E-03	419.25	0.0	0.0	9925.9	570.00	419.25
6 0.0	9.43457E-07	4.18018E-04	0.0	2.3339	8965.2	553.66	0.38416
1.4000	9.43457E-03	443.07	0.0	0.0	9925.9	570.00	443.07
7 0.0	9.35231E-07	4.38235E-04	0.0	2.3167	8855.9	551.72	0.40697
1.4000	9.35231E-03	468.58	0.0	0.0	9925.9	570.00	468.58
8 0.0	9.25855E-07	4.59427E-04	0.0	2.2970	8731.9	549.50	0.43184
1.4000	9.25855E-03	496.22	0.0	0.0	9925.9	570.00	496.22
9 0.0	9.15100E-07	4.81636E-04	0.0	2.2745	8590.2	546.94	0.45911
1.4000	9.15100E-03	526.32	0.0	0.0	9925.9	570.00	526.32
10 0.0	9.02670E-07	5.04905E-04	0.0	2.2480	8427.3	543.96	0.48926
1.4000	9.02670E-03	559.35	0.0	0.0	9925.9	570.00	559.35
11 0.0	8.88035E-07	5.29447E-04	0.0	2.2170	8236.7	540.41	0.52320
1.4000	8.88035E-03	596.20	0.0	0.0	9925.9	570.00	596.20
12 0.0	8.70569E-07	5.55284E-04	0.0	2.1790	8010.7	536.14	0.56197
1.4000	8.70569E-03	637.84	0.0	0.0	9925.9	570.00	637.84
13 0.0	8.49062E-07	5.82686E-04	0.0	2.1337	7735.1	530.80	0.60767
1.4000	8.49062E-03	686.27	0.0	0.0	9925.9	570.00	686.27
14 0.0	8.21459E-07	6.11617E-04	0.0	2.0742	7385.3	523.83	0.66387
1.4000	8.21459E-03	744.79	0.0	0.0	9925.9	570.00	744.79
15 0.0	7.82979E-07	6.42967E-04	0.0	1.9904	6905.6	513.87	0.73901
1.4000	7.82979E-03	821.18	0.0	0.0	9925.9	570.00	821.18
16 0.0	7.10740E-07	6.77561E-04	0.0	1.8306	6030.4	494.35	0.87470
1.4000	7.10740E-03	953.32	0.0	0.0	9925.9	570.00	953.32
17 0.0	6.56179E-07	6.96818E-04	0.0	1.7075	5392.4	478.81	0.97583
1.4000	6.56179E-03	1046.7	0.0	0.0	9925.9	570.00	1046.7
18 0.0	5.86452E-07	6.80979E-04	0.0	1.5473	4407.6	457.77	1.1072

	1.4000	5.86452E-03	1161.2	0.0	0.0	9925.9	570.00	1161.2
19	0.0	5.79554E-07	6.79418E-04	0.0	1.5312	4531.9	455.61	1.1204
	1.4000	5.79554E-03	1172.3	0.0	0.0	9925.9	570.00	1172.3
20	0.0	5.73221E-07	6.77836E-04	0.0	1.5164	4462.7	453.61	1.1327
	1.4000	5.73220E-03	1182.5	0.0	0.0	9925.9	570.00	1182.5
21	0.0	5.67331E-07	6.76241E-04	0.0	1.5027	4398.7	451.74	1.1441
	1.4000	5.67331E-03	1192.0	0.0	0.0	9925.9	570.00	1192.0
22	0.0	5.61805E-07	6.74633E-04	0.0	1.4898	4338.8	449.98	1.1549
	1.4000	5.61805E-03	1200.8	0.0	0.0	9925.9	570.00	1200.8
23	0.0	5.56584E-07	6.73017E-04	0.0	1.4775	4282.4	448.30	1.1651
	1.4000	5.56584E-03	1209.2	0.0	0.0	9925.9	570.00	1209.2
24	0.0	5.51605E-07	6.71390E-04	0.0	1.4658	4228.9	446.69	1.1749
	1.4000	5.51605E-03	1217.2	0.0	0.0	9925.9	570.00	1217.2
25	0.0	5.46874E-07	6.69765E-04	0.0	1.4547	4178.2	445.15	1.1842
	1.4000	5.46874E-03	1224.7	0.0	0.0	9925.9	570.00	1224.7
26	0.0	5.42341E-07	6.68138E-04	0.0	1.4440	4129.8	443.67	1.1932
	1.4000	5.42341E-03	1232.0	0.0	0.0	9925.9	570.00	1232.0
27	0.0	5.37986E-07	6.66510E-04	0.0	1.4337	4083.5	442.24	1.2018
	1.4000	5.37986E-03	1238.9	0.0	0.0	9925.9	570.00	1238.9
28	0.0	5.33789E-07	6.64880E-04	0.0	1.4238	4038.9	440.86	1.2102
	1.4000	5.33788E-03	1245.6	0.0	0.0	9925.9	570.00	1245.6
29	0.0	5.29733E-07	6.63251E-04	0.0	1.4142	3996.0	439.52	1.2183
	1.4000	5.29733E-03	1252.0	0.0	0.0	9925.9	570.00	1252.0
30	0.0	5.25810E-07	6.61622E-04	0.0	1.4049	3954.7	438.21	1.2262
	1.4000	5.25810E-03	1258.3	0.0	0.0	9925.9	570.00	1258.3
31	0.0	5.22007E-07	6.59996E-04	0.0	1.3959	3914.7	436.94	1.2339
	1.4000	5.22007E-03	1264.3	0.0	0.0	9925.9	570.00	1264.3
32	0.0	5.18313E-07	6.58371E-04	0.0	1.3871	3875.9	435.70	1.2414
	1.4000	5.18313E-03	1270.2	0.0	0.0	9925.9	570.00	1270.2
33	0.0	5.14720E-07	6.56747E-04	0.0	1.3786	3838.4	434.49	1.2487
	1.4000	5.14720E-03	1275.9	0.0	0.0	9925.9	570.00	1275.9
34	0.0	5.11224E-07	6.55127E-04	0.0	1.3702	3801.9	433.31	1.2559
	1.4000	5.11224E-03	1281.5	0.0	0.0	9925.9	570.00	1281.5
35	0.0	5.07813E-07	6.53509E-04	0.0	1.3621	3766.5	432.15	1.2629
	1.4000	5.07813E-03	1286.9	0.0	0.0	9925.9	570.00	1286.9
36	0.0	5.04485E-07	6.51893E-04	0.0	1.3542	3732.0	431.02	1.2698
	1.4000	5.04486E-03	1292.2	0.0	0.0	9925.9	570.00	1292.2
37	0.0	5.01225E-07	6.50277E-04	0.0	1.3464	3698.2	429.90	1.2765
	1.4000	5.01225E-03	1297.4	0.0	0.0	9925.9	570.00	1297.4
38	0.0	4.98047E-07	6.48667E-04	0.0	1.3388	3665.4	428.81	1.2831
	1.4000	4.98047E-03	1302.4	0.0	0.0	9925.9	570.00	1302.4
39	0.0	4.94938E-07	6.47063E-04	0.0	1.3313	3633.5	427.74	1.2896
	1.4000	4.94938E-03	1307.4	0.0	0.0	9925.9	570.00	1307.4
40	0.0	4.91897E-07	6.45463E-04	0.0	1.3240	3602.2	426.68	1.2959

-	1.4000	4.91897E-03	1312.2	0.0	0.0	9925.9	570.00	1312.2
41	0.0	4.88914E-07	6.43865E-04	0.0	1.3169	3571.7	425.64	1.3022
	1.4000	4.88913E-03	1316.9	0.0	0.0	9925.9	570.00	1316.9
42	0.0	4.85990E-07	6.42272E-04	0.0	1.3099	3541.8	424.62	1.3084
	1.4000	4.85989E-03	1321.6	0.0	0.0	9925.9	570.00	1321.6
43	0.0	4.83121E-07	6.40682E-04	0.0	1.3030	3512.6	423.62	1.3144
	1.4000	4.83121E-03	1326.1	0.0	0.0	9925.9	570.00	1326.1
44	0.0	4.80297E-07	6.39092E-04	0.0	1.2962	3483.9	422.63	1.3204
	1.4000	4.80297E-03	1330.6	0.0	0.0	9925.9	570.00	1330.6
45	0.0	4.77533E-07	6.37511E-04	0.0	1.2895	3455.8	421.65	1.3263
	1.4000	4.77533E-03	1335.0	0.0	0.0	9925.9	570.00	1335.0
46	0.0	4.74815E-07	6.35935E-04	0.0	1.2829	3428.3	420.69	1.3321
	1.4000	4.74815E-03	1339.3	0.0	0.0	9925.9	570.00	1339.3
47	0.0	4.72146E-07	6.34364E-04	0.0	1.2765	3401.4	419.74	1.3379
	1.4000	4.72146E-03	1343.6	0.0	0.0	9925.9	570.00	1343.6
48	0.0	4.69521E-07	6.32795E-04	0.0	1.2702	3374.9	418.81	1.3435
	1.4000	4.69520E-03	1347.7	0.0	0.0	9925.9	570.00	1347.7
49	0.0	4.66938E-07	6.31233E-04	0.0	1.2639	3349.0	417.89	1.3491
	1.4000	4.66938E-03	1351.9	0.0	0.0	9925.9	570.00	1351.9
50	0.0	4.64395E-07	6.29674E-04	0.0	1.2578	3323.5	416.97	1.3546
	1.4000	4.64395E-03	1355.9	0.0	0.0	9925.9	570.00	1355.9

WALL ITERATION NO= 0

	STREAMLINE %	W1	W2	W3	W4	P-STAT	TEMP(R)	MACH NO
	CP/CV	DENSITY	U	V	FLOW ANG(D)	P-STAG	T-STAG	VELOCITY
1	100.00	2.65403E-02	9.3196	-4.1006	65468.	9360.6	557.75	0.33139
	1.4000	9.77844E-03	351.15	-154.51	-23.749	10100.	570.00	383.64
2	100.00	2.59820E-02	9.5179	-4.1879	64139.	9297.2	556.67	0.34605
	1.4000	9.73110E-03	366.33	-161.18	-23.749	10100.	570.00	400.22
3	100.00	2.54140E-02	9.7211	-4.2773	62790.	9227.0	555.46	0.36173
	1.4000	9.67858E-03	382.51	-168.30	-23.749	10100.	570.00	417.99
4	100.00	2.48366E-02	9.9288	-4.3687	61420.	9149.3	554.12	0.37850
	1.4000	9.62026E-03	399.76	-175.90	-23.749	10100.	570.00	436.75
5	100.00	2.42457E-02	10.142	-4.4626	60022.	9042.5	552.62	0.39661
	1.4000	9.55496E-03	418.32	-184.06	-23.749	10100.	570.00	457.02
6	100.00	2.36405E-02	10.362	-4.5592	58593.	8965.2	550.91	0.41620
	1.4000	9.46159E-03	438.30	-192.85	-23.749	10100.	570.00	478.86
7	100.00	2.30198E-02	10.587	-4.6581	57130.	8855.9	548.99	0.43746
	1.4000	9.39892E-03	459.89	-202.35	-23.749	10100.	570.00	502.44
8	100.00	2.23778E-02	10.819	-4.7602	55622.	8731.9	546.78	0.46080
	1.4000	9.30469E-03	483.45	-212.72	-23.749	10100.	570.00	528.18
9	100.00	2.17114E-02	11.058	-4.8653	54060.	8590.2	544.23	0.48658
	1.4000	9.19641E-03	509.30	-224.09	-23.749	10100.	570.00	556.42
10	100.00	2.10164E-02	11.304	-4.9735	52437.	8427.3	541.26	0.51525
	1.4000	9.07169E-03	537.84	-236.65	-23.749	10100.	570.00	587.60
11	100.00	2.02812E-02	11.558	-5.0856	50725.	8236.7	537.73	0.54774
	1.4000	8.92461E-03	569.89	-250.75	-23.749	10100.	570.00	622.62
12	100.00	1.94964E-02	11.821	-5.2012	48905.	8010.7	533.48	0.58507
	1.4000	8.74908E-03	606.31	-266.78	-23.749	10100.	570.00	662.41
13	100.00	1.86376E-02	12.094	-5.3216	46921.	7735.1	528.17	0.62931
	1.4000	8.53294E-03	648.90	-285.52	-23.749	10100.	570.00	708.94
14	100.00	1.76668E-02	12.378	-5.4464	44687.	7385.3	521.23	0.68399
	1.4000	8.25554E-03	700.64	-308.28	-23.749	10100.	570.00	765.46
15	100.00	1.64923E-02	12.675	-5.5768	41996.	6905.6	511.32	0.75748
	1.4000	7.86882E-03	768.51	-338.15	-23.749	10100.	570.00	839.62
16	100.00	1.46549E-02	12.993	-5.7170	37806.	6030.4	491.90	0.89097
	1.4000	7.14283E-03	886.51	-390.11	-23.749	10100.	570.00	968.64
17	100.00	1.32385E-02	13.745	-2.8454	34504.	5392.4	476.44	0.99092
	1.4000	6.59450E-03	1038.3	-214.55	-11.675	10100.	570.00	1060.2
18	100.00	1.18475E-02	13.891	0.37098	31324.	4607.6	455.50	1.1211

	1.4000	5.69375E-03	1172.5	31.313	1.5299	10100.	570.00	1172.9
19	100.00	1.17238E-02	13.874	0.37054	31020.	4531.9	453.35	1.1343
	1.4000	5.82443E-03	1183.4	31.606	1.5299	10100.	570.00	1183.8
20	100.00	1.16111E-02	13.857	0.37009	30762.	4462.7	451.36	1.1464
	1.4000	5.76078E-03	1193.5	31.874	1.5299	10100.	570.00	1193.9
21	100.00	1.15070E-02	13.840	0.36964	30525.	4398.7	449.50	1.1577
	1.4000	5.70158E-03	1202.8	32.123	1.5299	10100.	570.00	1203.2
22	100.00	1.14101E-02	13.823	0.36919	30300.	4338.8	447.74	1.1684
	1.4000	5.64605E-03	1211.5	32.356	1.5299	10100.	570.00	1211.9
23	100.00	1.13190E-02	13.806	0.36873	30091.	4282.4	446.07	1.1786
	1.4000	5.59359E-03	1219.8	32.576	1.5299	10100.	570.00	1220.2
24	100.00	1.12327E-02	13.789	0.36828	29892.	4228.9	444.47	1.1883
	1.4000	5.54354E-03	1227.6	32.786	1.5299	10100.	570.00	1228.0
25	100.00	1.11511E-02	13.772	0.36782	29704.	4178.2	442.95	1.1976
	1.4000	5.49600E-03	1235.1	32.985	1.5299	10100.	570.00	1235.5
26	100.00	1.10733E-02	13.755	0.36736	29525.	4129.8	441.47	1.2065
	1.4000	5.45045E-03	1242.2	33.176	1.5299	10100.	570.00	1242.6
27	100.00	1.09958E-02	13.738	0.36691	29355.	4083.5	440.05	1.2151
	1.4000	5.40667E-03	1249.0	33.359	1.5299	10100.	570.00	1249.5
28	100.00	1.09274E-02	13.721	0.36645	29188.	4038.9	438.67	1.2235
	1.4000	5.36449E-03	1255.6	33.535	1.5299	10100.	570.00	1256.1
29	100.00	1.08587E-02	13.704	0.36599	29030.	3996.0	437.34	1.2315
	1.4000	5.32374E-03	1262.0	33.705	1.5299	10100.	570.00	1262.5
30	100.00	1.07924E-02	13.687	0.36553	28877.	3954.7	436.04	1.2394
	1.4000	5.28431E-03	1268.2	33.870	1.5299	10100.	570.00	1268.6
31	100.00	1.07284E-02	13.670	0.36508	28729.	3914.7	434.78	1.2470
	1.4000	5.24609E-03	1274.1	34.029	1.5299	10100.	570.00	1274.6
32	100.00	1.06664E-02	13.652	0.36462	28585.	3875.9	433.54	1.2545
	1.4000	5.20896E-03	1279.9	34.184	1.5299	10100.	570.00	1280.4
33	100.00	1.06064E-02	13.635	0.36416	28446.	3838.4	432.34	1.2618
	1.4000	5.17285E-03	1285.6	34.334	1.5299	10100.	570.00	1286.0
34	100.00	1.05481E-02	13.618	0.36371	28311.	3801.9	431.16	1.2689
	1.4000	5.13772E-03	1291.1	34.481	1.5299	10100.	570.00	1291.5
35	100.00	1.04914E-02	13.601	0.36325	28180.	3766.5	430.01	1.2758
	1.4000	5.10344E-03	1296.4	34.624	1.5299	10100.	570.00	1296.9
36	100.00	1.04363E-02	13.584	0.36280	28052.	3732.0	428.88	1.2827
	1.4000	5.07001E-03	1301.6	34.763	1.5299	10100.	570.00	1302.1
37	100.00	1.03823E-02	13.567	0.36234	27927.	3698.2	427.77	1.2894
	1.4000	5.03723E-03	1306.7	34.909	1.5299	10100.	570.00	1307.2
38	100.00	1.03259E-02	13.550	0.36189	27805.	3665.4	426.68	1.2959
	1.4000	5.00529E-03	1311.7	35.033	1.5299	10100.	570.00	1312.2
39	100.00	1.02788E-02	13.533	0.36143	27686.	3633.5	425.61	1.3024
	1.4000	4.97405E-03	1316.6	35.163	1.5299	10100.	570.00	1317.1
40	100.00	1.02269E-02	13.516	0.36098	27570.	3602.2	424.57	1.3087

	1.4000	4.94348E-03	1321.4	35.290	1.5299	10100.	570.00	1321.8
41	100.00	1.01800E-02	13.499	0.36753	27457.	3571.7	423.53	1.3150
	1.4000	4.91350E-03	1326.1	35.415	1.5299	10100.	570.00	1326.5
42	100.00	1.01322E-02	13.482	0.36008	27345.	3541.8	422.52	1.3211
	1.4000	4.88412E-03	1330.4	35.538	1.5299	10100.	570.00	1331.1
43	100.00	1.00854E-02	13.465	0.35963	27236.	3512.6	421.52	1.3271
	1.4000	4.85529E-03	1335.1	35.658	1.5299	10100.	570.00	1335.6
44	100.00	1.00394E-02	13.449	0.35918	27129.	3483.9	420.53	1.3331
	1.4000	4.82690E-03	1339.6	35.776	1.5299	10100.	570.00	1340.0
45	100.00	9.95492E-03	13.432	0.35873	27024.	3455.8	419.56	1.3390
	1.4000	4.79913E-03	1343.9	35.892	1.5299	10100.	570.00	1344.4
46	100.00	9.95043E-03	13.415	0.35828	26922.	3428.3	419.61	1.3447
	1.4000	4.77181E-03	1348.2	36.006	1.5299	10100.	570.00	1348.7
47	100.00	9.90721E-03	13.398	0.35783	26821.	3401.4	417.66	1.3504
	1.4000	4.74499E-03	1352.4	36.118	1.5299	10100.	570.00	1352.8
48	100.00	9.86477E-03	13.381	0.35738	26722.	3374.9	416.73	1.3561
	1.4000	4.71861E-03	1356.5	36.228	1.5299	10100.	570.00	1357.0
49	100.00	9.82309E-03	13.365	0.35694	26624.	3349.0	415.81	1.3616
	1.4000	4.69266E-03	1360.5	36.337	1.5299	10100.	570.00	1361.0
50	100.00	9.78209E-03	13.348	0.35649	26529.	3323.5	414.91	1.3671
	1.4000	4.66709E-03	1364.5	36.444	1.5299	10100.	570.00	1365.0

PRINTOUT OF CONSTANT PRESSURE PLOT VALVES

ISOBAR = 65.000(PSIA) 9360.0PSFA

1	1.009	0.000	2	1.009	0.136	3	1.009	0.271	4	1.009	0.407	5	1.009	0.543
6	1.009	0.679	7	1.009	0.814	8	1.009	0.950	9	1.009	1.086	10	1.009	1.221
11	1.009	1.357	12	1.009	1.493	13	1.009	1.628	14	1.009	1.764	15	1.009	1.900
16	1.009	2.035	17	1.009	2.171	18	1.009	2.307	19	1.009	2.442	20	1.009	2.578
21	1.009	2.714												

ISOBAR = 60.000(PSIA) 8640.0PSFA

1	8.649	0.000	2	8.649	0.119	3	8.649	0.238	4	8.649	0.357	5	8.649	0.475
6	8.649	0.594	7	8.649	0.713	8	8.649	0.832	9	8.649	0.951	10	8.649	1.069
11	8.649	1.188	12	8.649	1.307	13	8.649	1.426	14	8.649	1.545	15	8.649	1.663
16	8.649	1.782	17	8.649	1.901	18	8.649	2.020	19	8.649	2.139	20	8.649	2.258
21	8.649	2.376												

ISOBAR = 55.000(PSIA) 7920.0PSFA

1	12.329	0.000	2	12.329	0.111	3	12.329	0.221	4	12.329	0.332	5	12.329	0.443
6	12.329	0.554	7	12.329	0.664	8	12.329	0.775	9	12.329	0.886	10	12.329	0.996
11	12.329	1.107	12	12.329	1.218	13	12.329	1.328	14	12.329	1.439	15	12.329	1.550
16	12.329	1.660	17	12.329	1.771	18	12.329	1.882	19	12.329	1.992	20	12.329	2.103
21	12.329	2.214												

ISOBAR = 50.000(PSIA) 7200.0PSFA

1	14.386	0.000	2	14.386	0.106	3	14.386	0.212	4	14.386	0.319	5	14.386	0.425
6	14.386	0.531	7	14.386	0.637	8	14.386	0.743	9	14.386	0.849	10	14.386	0.955
11	14.386	1.062	12	14.386	1.168	13	14.386	1.274	14	14.386	1.380	15	14.386	1.486
16	14.386	1.592	17	14.386	1.698	18	14.386	1.805	19	14.386	1.911	20	14.386	2.017
21	14.386	2.123												

ISOBAR = 45.000(PSIA) 6480.0PSFA

1	15.486	0.000	2	15.486	0.104	3	15.486	0.208	4	15.486	0.311	5	15.486	0.415
6	15.486	0.519	7	15.486	0.622	8	15.486	0.726	9	15.486	0.830	10	15.486	0.934
11	15.486	1.037	12	15.486	1.141	13	15.486	1.245	14	15.486	1.348	15	15.486	1.452
16	15.486	1.556	17	15.486	1.660	18	15.486	1.763	19	15.486	1.867	20	15.486	1.971
21	15.486	2.074												

ISOBAR = 40.000(PSIA) 5760.0PSFA

1	16.424	0.000	2	16.424	0.102	3	16.424	0.203	4	16.424	0.305	5	16.424	0.407
6	16.424	0.508	7	16.424	0.610	8	16.424	0.712	9	16.424	0.813	10	16.424	0.915
11	16.424	1.017	12	16.424	1.118	13	16.424	1.220	14	16.424	1.321	15	16.424	1.423
16	16.424	1.525	17	16.424	1.626	18	16.424	1.728	19	16.424	1.830	20	16.424	1.931
21	16.424	2.033												

ISOBAR = 35.000(PSIA) 5040.0PSFA

1	17.449	0.000	2	17.449	0.101	3	17.449	0.201	4	17.449	0.301	5	17.449	0.402
6	17.449	0.502	7	17.449	0.603	8	17.449	0.703	9	17.449	0.804	10	17.449	0.904
11	17.449	1.004	12	17.449	1.105	13	17.449	1.205	14	17.449	1.306	15	17.449	1.406
16	17.449	1.507	17	17.449	1.607	18	17.449	1.707	19	17.449	1.808	20	17.449	1.908
21	17.449	2.009												

ISOBAR = 30.000(PSIA) 4320.0PSFA

1	22.333	0.000	2	22.333	0.101	3	22.333	0.202	4	22.333	0.303	5	22.333	0.404
6	22.333	0.506	7	22.333	0.607	8	22.333	0.708	9	22.333	0.809	10	22.333	0.910
11	22.333	1.011	12	22.333	1.112	13	22.333	1.213	14	22.333	1.314	15	22.333	1.415
16	22.333	1.516	17	22.333	1.617	18	22.333	1.719	19	22.333	1.820	20	22.333	1.921
21	22.333	2.022												

ISOBAR = 25.000(PSIA) 3600.0PSFA

1	40.073	0.000	2	40.073	0.104	3	40.073	0.207	4	40.073	0.310	5	40.073	0.414
6	40.073	0.517	7	40.073	0.621	8	40.073	0.724	9	40.073	0.828	10	40.073	0.931
11	40.073	1.035	12	40.073	1.138	13	40.073	1.242	14	40.073	1.345	15	40.073	1.449
16	40.073	1.552	17	40.073	1.656	18	40.073	1.759	19	40.073	1.862	20	40.073	1.966
21	40.073	2.069												

RETURN FROM "ISOBAR"

AXIS ITERATION NO= 300

	STREAMLINE % / CP/CV	W1 / DENSITY	W2 / U	W3 / V	W4 / FLOW ANG(D)	P-STAT / P-STAG	TEMP(R) / T-STAG	MACH NO / VELOCITY
1	0.0	9.77285E-07	3.11994E-04	0.0	2.4044	9418.4	561.52	0.27484
	1.4000	9.77285E-03	319.25	0.0	0.0	9925.9	570.00	319.25
2	0.0	9.65795E-07	3.53216E-04	0.0	2.3805	9263.8	555.87	0.31560
	1.4000	9.65795E-03	355.73	0.0	0.0	9925.9	570.00	365.73
3	0.0	9.02328E-07	5.05508E-04	0.0	2.2473	8422.8	543.88	0.49006
	1.4000	9.02328E-03	560.23	0.0	0.0	9925.9	570.00	560.23
4	0.0	9.21883E-07	4.67876E-04	0.0	2.2886	8679.5	548.56	0.44206
	1.4000	9.21883E-03	507.52	0.0	0.0	9925.9	570.00	507.52
5	0.0	9.59647E-07	3.72154E-04	0.0	2.3681	9184.0	557.49	0.33500
	1.4000	9.59647E-03	387.72	0.0	0.0	9925.9	570.00	387.72
6	0.0	9.63007E-07	3.62272E-04	0.0	2.3747	9226.3	558.22	0.32482
	1.4000	9.63007E-03	376.19	0.0	0.0	9925.9	570.00	376.19
7	0.0	9.51036E-07	3.97836E-04	0.0	2.3498	9066.2	555.43	0.36210
	1.4000	9.51036E-03	418.32	0.0	0.0	9925.9	570.00	418.32
8	0.0	9.35288E-07	4.38101E-04	0.0	2.3168	8856.7	551.74	0.40682
	1.4000	9.35289E-03	468.41	0.0	0.0	9925.9	570.00	468.41
9	0.0	9.24107E-07	4.63182E-04	0.0	2.2933	8708.8	549.09	0.43636
	1.4000	9.24107E-03	501.22	0.0	0.0	9925.9	570.00	501.22
10	0.0	9.15118E-07	4.81602E-04	0.0	2.2743	8590.5	546.95	0.45907
	1.4000	9.15118E-03	526.27	0.0	0.0	9925.9	570.00	526.27
11	0.0	9.06006E-07	4.98894E-04	0.0	2.2551	8470.9	544.76	0.48130
	1.4000	9.06006E-03	550.65	0.0	0.0	9925.9	570.00	550.65
12	0.0	8.95714E-07	5.16926E-04	0.0	2.2333	8336.5	542.28	0.50558
	1.4000	8.95714E-03	577.11	0.0	0.0	9925.9	570.00	577.11
13	0.0	8.84519E-07	5.34933E-04	0.0	2.2095	8191.0	539.56	0.53114
	1.4000	8.84519E-03	604.77	0.0	0.0	9925.9	570.00	604.77
14	0.0	8.72086E-07	5.53172E-04	0.0	2.1830	8030.3	536.51	0.55866
	1.4000	8.72086E-03	634.31	0.0	0.0	9925.9	570.00	634.31
15	0.0	8.59710E-07	5.69681E-04	0.0	2.1565	7871.2	533.45	0.58529
	1.4000	8.59710E-03	662.64	0.0	0.0	9925.9	570.00	662.64
16	0.0	8.46143E-07	5.86070E-04	0.0	2.1274	7697.9	530.07	0.61373
	1.4000	8.46143E-03	692.64	0.0	0.0	9925.9	570.00	692.64
17	0.0	8.24864E-07	6.08556E-04	0.0	2.0815	7428.2	524.60	0.65706
	1.4000	8.24864E-03	737.77	0.0	0.0	9925.9	570.00	737.77
18	0.0	8.13472E-07	6.19130E-04	0.0	2.0568	7285.0	521.78	0.67972

	1.4000	8.13472E-03	761.10	0.0	0.0	9925.9	570.00	761.10
19	0.0	7.99113E-07	6.31129E-04	0.0	2.0256	7105.6	518.08	0.70796
	1.4000	7.99113E-03	789.79	0.0	0.0	9925.9	570.00	789.79
20	0.0	7.53794E-07	6.60350E-04	0.0	1.9262	6547.9	506.12	0.79439
	1.4000	7.53794E-03	876.03	0.0	0.0	9925.9	570.00	876.03
21	0.0	6.93237E-07	6.81970E-04	0.0	1.7913	5823.5	489.45	0.90713
	1.4000	6.93237E-03	983.75	0.0	0.0	9925.9	570.00	983.75
22	0.0	6.10535E-07	6.85078E-04	0.0	1.6030	4674.6	465.20	1.0613
	1.4000	6.10534E-03	1122.1	0.0	0.0	9925.9	570.00	1122.1
23	0.0	5.80644E-07	6.79676E-04	0.0	1.5338	4543.8	455.95	1.1183
	1.4000	5.80644E-03	1170.6	0.0	0.0	9925.9	570.00	1170.6
24	0.0	5.56600E-07	6.73023E-04	0.0	1.4775	4282.6	448.30	1.1650
	1.4000	5.56600E-03	1209.2	0.0	0.0	9925.9	570.00	1209.2
25	0.0	5.35879E-07	6.65700E-04	0.0	1.4288	4061.1	441.55	1.2060
	1.4000	5.35879E-03	1242.3	0.0	0.0	9925.9	570.00	1242.3
26	0.0	5.17741E-07	6.58115E-04	0.0	1.3858	3870.0	435.51	1.2426
	1.4000	5.17740E-03	1271.1	0.0	0.0	9925.9	570.00	1271.1
27	0.0	5.01559E-07	6.50444E-04	0.0	1.3472	3701.7	430.01	1.2758
	1.4000	5.01559E-03	1296.8	0.0	0.0	9925.9	570.00	1296.8
28	0.0	4.86843E-07	6.42740E-04	0.0	1.3119	3550.5	424.92	1.3066
	1.4000	4.86843E-03	1320.2	0.0	0.0	9925.9	570.00	1320.2
29	0.0	4.73212E-07	6.34993E-04	0.0	1.2791	3412.1	423.12	1.3356
	1.4000	4.73212E-03	1341.9	0.0	0.0	9925.9	570.00	1341.9
30	0.0	4.60378E-07	6.27171E-04	0.0	1.2480	3283.3	415.53	1.3634
	1.4000	4.60378E-03	1362.3	0.0	0.0	9925.9	570.00	1362.3
31	0.0	4.48170E-07	6.19258E-04	0.0	1.2183	3162.0	411.08	1.3903
	1.4000	4.48170E-03	1381.7	0.0	0.0	9925.9	570.00	1381.7
32	0.0	4.36519E-07	6.11281E-04	0.0	1.1899	3047.6	406.78	1.4164
	1.4000	4.36519E-03	1400.4	0.0	0.0	9925.9	570.00	1400.4
33	0.0	4.25452E-07	6.03323E-04	0.0	1.1626	2939.9	402.62	1.4418
	1.4000	4.25452E-03	1418.1	0.0	0.0	9925.9	570.00	1418.1
34	0.0	4.15082E-07	5.95530E-04	0.0	1.1372	2840.1	398.66	1.4659
	1.4000	4.15082E-03	1434.7	0.0	0.0	9925.9	570.00	1434.7
35	0.0	4.05578E-07	5.88104E-04	0.0	1.1136	2749.5	394.99	1.4884
	1.4000	4.05578E-03	1450.0	0.0	0.0	9925.9	570.00	1450.0
36	0.0	3.97179E-07	5.81318E-04	0.0	1.0929	2670.1	391.70	1.5087
	1.4000	3.97179E-03	1463.6	0.0	0.0	9925.9	570.00	1463.6
37	0.0	3.90173E-07	5.75496E-04	0.0	1.0755	2604.4	388.92	1.5258
	1.4000	3.90173E-03	1475.0	0.0	0.0	9925.9	570.00	1475.0
38	0.0	3.84935E-07	5.71047E-04	0.0	1.0625	2555.6	386.82	1.5388
	1.4000	3.84935E-03	1483.5	0.0	0.0	9925.9	570.00	1483.5
39	0.0	3.81894E-07	5.68428E-04	0.0	1.0549	2527.4	385.59	1.5463
	1.4000	3.81894E-03	1488.4	0.0	0.0	9925.9	570.00	1488.4
40	0.0	3.81558E-07	5.68137E-04	0.0	1.0540	2524.3	385.46	1.5472

	1.4000	3.81558E-03	1489.0	0.0	0.0	9925.9	570.00	1489.0
41	0.0	3.84490E-07	5.70666E-04	0.0	1.0614	2551.4	396.64	1.5399
	1.4000	3.84490E-03	1484.2	0.0	0.0	9925.9	570.00	1484.2
42	0.0	3.91226E-07	5.76380E-04	0.0	1.0781	2614.3	399.34	1.5232
	1.4000	3.91226E-03	1473.3	0.0	0.0	9925.9	570.00	1473.3
43	0.0	4.02110E-07	5.85327E-04	0.0	1.1052	2716.6	393.63	1.4967
	1.4000	4.02110E-03	1459.6	0.0	0.0	9925.9	570.00	1455.6
44	0.0	4.16974E-07	5.96976E-04	0.0	1.1419	2850.3	399.39	1.4615
	1.4000	4.16974E-03	1431.7	0.0	0.0	9925.9	570.00	1431.7
45	0.0	4.34911E-07	6.10148E-04	0.0	1.1860	3031.9	406.18	1.4201
	1.4000	4.34911E-03	1402.9	0.0	0.0	9925.9	570.00	1402.9
46	0.0	4.53909E-07	6.23035E-04	0.0	1.2323	3210.9	413.18	1.3776
	1.4000	4.53909E-03	1372.6	0.0	0.0	9925.9	570.00	1372.6
47	0.0	4.71829E-07	6.34175E-04	0.0	1.2757	3390.2	419.69	1.3385
	1.4000	4.71829E-03	1344.1	0.0	0.0	9925.9	570.00	1344.1
48	0.0	4.86665E-07	6.42642E-04	0.0	1.3115	3540.7	424.86	1.3069
	1.4000	4.86665E-03	1320.5	0.0	0.0	9925.9	570.00	1320.5
49	0.0	5.01328E-07	6.50322E-04	0.0	1.3466	3699.3	429.94	1.2763
	1.4000	5.01329E-03	1297.2	0.0	0.0	9925.9	570.00	1297.2
50	0.0	5.15362E-07	6.57322E-04	0.0	1.3816	3851.6	434.92	1.2462
	1.4000	5.15981E-03	1273.9	0.0	0.0	9925.9	570.00	1273.9

WALL ITERATION NU= 300

STREAMLINE # / CP/CV		W1 / DENSITY	W2 / U	W3 / V	W4 / FLOW ANG(D)	P-STAT / P-STAG	TEMP(R) / T-STAG	MACH NO / VELOCITY
1	100.00	2.66573E-02	8.9775	-3.9501	65712.	9418.4	558.73	0.31755
	1.4000	9.82156E-03	336.78	-148.18	-23.749	10100.	570.00	367.93
2	100.00	2.66336E-02	7.4574	-3.2813	65495.	9418.4	550.13	0.26607
	1.4000	9.97517E-03	280.00	-123.20	-23.749	9893.4	557.92	305.91
3	100.00	2.61427E-02	7.5194	-3.3085	64307.	9418.4	551.18	0.27306
	1.4000	9.95610E-03	287.63	-126.56	-23.749	9919.2	559.40	314.24
4	100.00	2.53309E-02	8.6154	-3.7908	62452.	9405.2	558.51	0.32076
	1.4000	9.81170E-03	340.12	-149.65	-23.749	10100.	570.00	371.58
5	100.00	2.43380E-02	9.9318	-4.3700	60215.	9110.8	553.46	0.38661
	1.4000	9.59132E-03	408.08	-179.56	-23.749	10100.	570.00	445.84
6	100.00	2.34896E-02	10.669	-4.6943	58275.	8885.2	549.50	0.43184
	1.4000	9.42108E-03	454.20	-199.85	-23.749	10100.	570.00	496.22
7	100.00	2.33972E-02	9.8002	-4.3121	57923.	9059.9	552.57	0.39714
	1.4000	9.55300E-03	418.86	-184.30	-23.749	10100.	570.00	457.61
8	100.00	2.29469E-02	9.6857	-4.2617	56819.	9044.4	552.30	0.40030
	1.4000	9.54133E-03	422.09	-155.72	-23.749	10100.	570.00	461.15
9	100.00	2.22937E-02	9.9970	-4.3987	55289.	8914.5	550.02	0.42615
	1.4000	9.44329E-03	448.42	-197.31	-23.749	10100.	570.00	489.91
10	100.00	2.16109E-02	10.322	-4.5418	53695.	8763.0	547.33	0.45503
	1.4000	9.32832E-03	477.44	-210.16	-23.749	10100.	570.00	521.83
11	100.00	2.09404E-02	10.576	-4.6534	52125.	8613.9	544.66	0.48233
	1.4000	9.21472E-03	505.05	-222.22	-23.749	10100.	570.00	551.78
12	100.00	2.02344E-02	10.844	-4.7714	50479.	8438.4	541.46	0.51332
	1.4000	9.08025E-03	535.93	-235.81	-23.749	10100.	570.00	585.51
13	100.00	1.94776E-02	11.139	-4.8970	48721.	8227.5	537.56	0.54928
	1.4000	8.91752E-03	571.40	-251.42	-23.749	10100.	570.00	624.27
14	100.00	1.85931E-02	11.500	-5.0600	46686.	7933.0	531.99	0.59767
	1.4000	8.68835E-03	618.51	-272.14	-23.749	10100.	570.00	675.76
15	100.00	1.76190E-02	11.855	-5.2163	44451.	7574.9	525.02	0.65450
	1.4000	8.40640E-03	672.87	-296.06	-23.749	10100.	570.00	735.12
16	100.00	1.61041E-02	12.430	-5.4692	41022.	6851.4	510.81	0.76116
	1.4000	7.84915E-03	771.86	-339.62	-23.749	10100.	570.00	843.27
17	100.00	6.68840E-03	12.068	-2.4936	23746.	2990.4	402.57	1.4420
	1.4000	4.32797E-03	1388.9	-287.01	-11.675	10100.	570.00	1418.3
18	100.00	7.23681E-03	11.101	0.29649	20134.	2310.8	373.99	1.6188

	1.4000	3.60008E-03	1534.0	40.970	1.5299	10100.	570.00	1534.6
19	100.00	8.78986E-03	12.408	0.33139	24002.	3028.0	404.02	1.4332
	1.4000	4.36685E-03	1411.6	37.701	1.5299	10100.	570.00	1412.1
20	100.00	8.47215E-03	12.178	0.32524	23223.	2870.6	397.90	1.4706
	1.4000	4.20342E-03	1437.4	38.390	1.5299	10100.	570.00	1437.9
21	100.00	8.45490E-03	12.172	0.32509	23184.	2857.1	397.36	1.4739
	1.4000	4.18929E-03	1439.7	38.449	1.5299	10100.	570.00	1440.2
22	100.00	8.73862E-03	12.395	0.33103	23896.	2966.6	402.43	1.4428
	1.4000	4.32412E-03	1418.4	37.881	1.5299	10100.	570.00	1418.9
23	100.00	9.06818E-03	12.638	0.33753	24696.	3139.7	408.22	1.4077
	1.4000	4.48126E-03	1393.7	37.221	1.5299	10100.	570.00	1394.2
24	100.00	9.40581E-03	12.872	0.34377	25522.	3298.4	414.01	1.3726
	1.4000	4.64193E-03	1368.5	36.549	1.5299	10100.	570.00	1369.0
25	100.00	9.72869E-03	13.081	0.34936	26308.	3451.6	419.42	1.3398
	1.4000	4.79494E-03	1344.6	35.910	1.5299	10100.	570.00	1345.0
26	100.00	1.00121E-02	13.254	0.35397	26995.	3586.6	424.04	1.3119
	1.4000	4.92812E-03	1323.8	35.355	1.5299	10100.	570.00	1324.2
27	100.00	1.02384E-02	13.386	0.35750	27542.	3693.7	427.62	1.2903
	1.4000	5.03284E-03	1307.4	34.918	1.5299	10100.	570.00	1307.9
28	100.00	1.03996E-02	13.479	0.35999	27932.	3768.5	430.07	1.2755
	1.4000	5.10537E-03	1296.1	34.616	1.5299	10100.	570.00	1296.6
29	100.00	1.04963E-02	13.538	0.36156	28167.	3810.6	431.44	1.2672
	1.4000	5.14509E-03	1289.8	34.446	1.5299	10100.	570.00	1290.2
30	100.00	1.05353E-02	13.568	0.36236	28264.	3823.4	431.86	1.2647
	1.4000	5.15844E-03	1287.8	34.395	1.5299	10100.	570.00	1288.3
31	100.00	1.05266E-02	13.575	0.36254	28248.	3812.0	431.49	1.2669
	1.4000	5.14742E-03	1289.5	34.441	1.5299	10100.	570.00	1290.0
32	100.00	1.04812E-02	13.563	0.36224	28143.	3782.0	430.51	1.2728
	1.4000	5.11650E-03	1294.1	34.561	1.5299	10100.	570.00	1294.5
33	100.00	1.04093E-02	13.538	0.36157	27975.	3738.9	429.11	1.2813
	1.4000	5.07674E-03	1300.6	34.735	1.5299	10100.	570.00	1301.0
34	100.00	1.03194E-02	13.502	0.36061	27764.	3687.0	427.40	1.2916
	1.4000	5.02634E-03	1308.4	34.945	1.5299	10100.	570.00	1308.9
35	100.00	1.02181E-02	13.459	0.35945	27525.	3629.8	425.49	1.3031
	1.4000	4.97051E-03	1317.2	35.178	1.5299	10100.	570.00	1317.6
36	100.00	1.01104E-02	13.410	0.35814	27270.	3569.8	423.47	1.3153
	1.4000	4.91169E-03	1326.3	35.423	1.5299	10100.	570.00	1326.8
37	100.00	9.99940E-03	13.357	0.35672	27006.	3508.7	421.39	1.3279
	1.4000	4.85144E-03	1335.7	35.674	1.5299	10100.	570.00	1336.2
38	100.00	9.88786E-03	13.301	0.35523	26741.	3447.7	419.28	1.3407
	1.4000	4.79110E-03	1345.2	35.926	1.5299	10100.	570.00	1345.6
39	100.00	9.77727E-03	13.243	0.35369	26477.	3387.7	417.18	1.3535
	1.4000	4.73136E-03	1354.5	36.175	1.5299	10100.	570.00	1355.0
40	100.00	9.66851E-03	13.185	0.35213	26217.	3329.0	415.10	1.3659

	1.4000	4.67268E-03	1363.7	36.420	1.5299	10100.	570.00	1364.2
41	100.00	9.56221E-03	13.126	0.35055	25962.	3272.0	413.06	1.3783
	1.4000	4.61533E-03	1372.6	36.660	1.5299	10100.	570.00	1373.1
42	100.00	9.45874E-03	13.066	0.34897	25714.	3216.7	411.05	1.3905
	1.4000	4.55948E-03	1381.4	36.893	1.5299	10100.	570.00	1381.9
43	100.00	9.35806E-03	13.007	0.34738	25472.	3163.1	409.09	1.4024
	1.4000	4.50513E-03	1389.9	37.121	1.5299	10100.	570.00	1390.4
44	100.00	9.26035E-03	12.948	0.34580	25236.	3111.3	407.16	1.4141
	1.4000	4.45233E-03	1398.2	37.342	1.5299	10100.	570.00	1398.7
45	100.00	9.16594E-03	12.889	0.34424	25009.	3061.5	405.29	1.4255
	1.4000	4.40127E-03	1406.2	37.557	1.5299	10100.	570.00	1406.7
46	100.00	9.07530E-03	12.832	0.34271	24790.	3013.8	403.47	1.4366
	1.4000	4.35214E-03	1414.0	37.763	1.5299	10100.	570.00	1414.5
47	100.00	8.98784E-03	12.776	0.34120	24576.	2967.8	401.70	1.4473
	1.4000	4.30467E-03	1421.4	37.963	1.5299	10100.	570.00	1421.9
48	100.00	8.90154E-03	12.719	0.33968	24369.	2922.8	399.95	1.4580
	1.4000	4.25787E-03	1428.8	38.160	1.5299	10100.	570.00	1429.3
49	100.00	8.80041E-03	12.649	0.33782	24122.	2871.2	397.92	1.4704
	1.4000	4.20411E-03	1437.3	38.387	1.5299	10100.	570.00	1437.8
50	100.00	8.70058E-03	12.578	0.33763	23879.	2820.7	395.91	1.4828
	1.4000	4.15110E-03	1445.7	36.802	1.5374	10100.	570.00	1446.2

PRINTOUT OF CONSTANT PRESSURE PLOT VALVES

ISOBAR = 65.000(PSIA) 9360.0PSFA

1	1.378	0.000	2	1.118	0.136	3	4.875	0.127	4	5.315	0.126	5	1.086	0.271
6	4.805	0.255	7	5.207	0.253	8	1.076	0.407	9	4.547	0.384	10	5.131	0.380
11	1.070	0.542	12	3.935	0.517	13	5.094	0.597	14	1.059	0.678	15	3.945	0.646
16	5.092	0.633	17	1.052	0.814	18	3.958	0.775	19	5.120	0.760	20	1.050	0.949
21	4.237	0.930	22	5.266	0.884	23	1.056	1.085	24	4.968	1.017	25	6.056	0.996
26	1.076	1.220	27	4.927	1.143	28	6.084	1.120	29	1.097	1.355	30	4.978	1.269
31	6.114	1.244	32	1.190	1.488	33	2.019	1.602	34	3.362	1.696	35	3.471	1.824
36	3.197	1.963	37	3.131	2.096	38	3.122	2.227	39	3.142	2.358	40	3.240	2.484
41	4.153	2.275	42	2.000	1.598	43	3.000	1.688	44	4.000	0.455	45	4.009	0.873
46	4.000	2.556	47	5.000	0.095	48	5.000	1.276	49	6.060	0.964	50	6.000	1.261

ISOBAR = 60.000(PSIA) 8640.0PSFA

1	2.742	0.000	2	3.846	0.000	3	9.581	0.000	4	2.569	0.132	5	3.407	0.130
6	9.534	0.117	7	2.301	0.266	8	3.330	0.261	9	9.607	0.233	10	2.070	0.400
11	3.200	0.393	12	9.728	0.349	13	1.936	0.535	14	3.129	0.524	15	6.720	0.492
16	7.376	0.457	17	9.941	0.464	18	1.782	0.670	19	3.279	0.654	20	6.321	0.620
21	8.273	0.599	22	10.174	0.577	23	1.687	0.805	24	3.438	0.782	25	6.378	0.743
26	8.719	0.712	27	10.264	0.692	28	1.667	0.940	29	3.548	0.911	30	6.520	0.865
31	8.963	0.827	32	10.233	0.807	33	1.753	1.072	34	3.739	1.037	35	6.721	0.985
36	1.930	1.203	37	4.033	1.161	38	7.448	1.092	39	2.200	1.331	40	4.135	1.288
41	8.958	1.181	42	2.670	1.452	43	3.725	1.427	44	9.172	1.294	45	9.281	1.409
46	5.467	1.636	47	6.253	1.613	48	9.351	1.524	49	4.829	1.792	50	6.387	1.733
51	9.412	1.640	52	4.605	1.916	53	6.352	1.858	54	9.475	1.755	55	4.525	2.047
56	6.187	1.988	57	9.550	1.869	58	4.734	2.167	59	5.632	2.133	60	9.694	1.981
61	9.913	2.088	62	10.334	2.187	63	10.825	2.280	64	2.000	0.428	65	2.000	1.239
66	3.000	1.495	67	4.000	1.152	68	4.000	1.364	69	5.000	1.696	70	5.000	2.222
71	6.000	1.552	72	6.000	2.071	73	7.000	0.451	74	7.000	1.076	75	8.000	0.569
76	8.000	1.136	77	9.000	0.853	78	9.000	1.201	79	10.000	0.495	80	10.000	0.897
81	10.000	2.112												

ISOBAR = 55.000(PSIA) 7920.0PSFA

1	14.693	0.000	2	14.639	0.106	3	14.584	0.212	4	14.501	0.318	5	14.407	0.424
6	14.315	0.532	7	14.191	0.640	8	2.716	0.923	9	3.085	0.918	10	14.089	0.748
11	2.670	1.056	12	3.178	1.047	13	13.932	0.857	14	2.762	1.186	15	3.229	1.177
16	13.792	0.967	17	13.627	1.078	18	13.456	1.190	19	13.313	1.302	20	13.207	1.416
21	13.137	1.525	22	13.119	1.634	23	13.152	1.742	24	13.246	1.847	25	13.381	1.951
26	13.627	2.049	27	14.036	2.138	28	3.000	0.848	29	3.000	1.301	30	14.000	0.810
31	14.000	2.130												

ISOBAR = 50.000(PSIA) 7200.0PSFA

1	18.474	0.000	2	18.226	0.101	3	18.145	0.201	4	18.041	0.302	5	17.857	0.402
6	17.623	0.502	7	17.343	0.603	8	17.062	0.703	9	16.803	0.807	10	16.567	0.912
11	16.333	1.019	12	16.117	1.126	13	15.874	1.234	14	15.621	1.345	15	15.409	1.455
16	15.249	1.566	17	15.150	1.671	18	15.109	1.777	19	15.114	1.882	20	15.175	1.984

21	15.541	2.072	22	16.000	1.183	23	17.000	0.721	24	18.000	0.330

ISOBAR = 45.000(PSIA) 6480.0PSFA

1	20.094	0.000	2	19.929	0.101	3	19.906	0.202	4	19.839	0.302	5	19.742	0.403
6	19.607	0.504	7	19.432	0.604	8	19.213	0.705	9	19.005	0.605	10	18.620	0.905
11	18.249	1.005	12	17.932	1.106	13	17.461	1.205	14	17.028	1.305	15	16.707	1.414
16	16.437	1.524	17	16.270	1.632	18	16.150	1.738	19	16.049	1.845	20	15.977	1.950
21	16.103	2.047	22	16.000	1.927	23	16.000	1.954	24	17.000	1.312	25	18.000	1.091
26	19.000	0.807	27	20.000	0.076									

ISOBAR = 40.000(PSIA) 5760.0PSFA

1	21.067	0.000	2	20.976	0.101	3	20.947	0.202	4	20.894	0.303	5	20.808	0.404
6	20.656	0.504	7	20.512	0.605	8	20.241	0.706	9	20.017	0.806	10	19.734	0.907
11	19.371	1.007	12	19.080	1.107	13	18.716	1.207	14	18.274	1.307	15	17.843	1.407
16	17.335	1.506	17	17.003	1.606	18	16.752	1.716	19	16.522	1.826	20	16.336	1.935
21	16.289	2.039	22	17.000	1.607	23	18.000	1.375	24	19.000	1.132	25	20.009	0.813
26	21.000	0.080												

ISOBAR = 35.000(PSIA) 5040.0PSFA

1	21.826	0.000	2	21.968	0.101	3	21.858	0.202	4	21.822	0.303	5	21.767	0.404
6	21.674	0.505	7	21.562	0.606	8	21.257	0.707	9	20.925	0.807	10	20.723	0.908
11	20.372	1.008	12	19.959	1.109	13	19.695	1.209	14	19.279	1.309	15	18.854	1.409
16	18.336	1.508	17	17.809	1.608	18	17.418	1.707	19	16.996	1.827	20	16.682	1.920
21	16.473	2.031	22	17.000	1.605	23	18.000	1.563	24	19.000	1.370	25	20.000	1.095
26	21.000	0.774												

ISOBAR = 30.000(PSIA) 4320.0PSFA

1	23.857	0.000	2	23.869	0.101	3	23.855	0.203	4	23.775	0.304	5	23.662	0.405
6	23.490	0.506	7	23.398	0.607	8	23.385	0.709	9	23.179	0.810	10	22.655	0.910
11	22.543	1.011	12	21.921	1.111	13	21.223	1.211	14	20.722	1.311	15	20.218	1.411
16	19.653	1.511	17	19.922	1.610	18	18.224	1.709	19	17.645	1.808	20	17.055	1.907
21	16.658	2.023	22	17.000	1.911	23	18.000	1.734	24	19.000	1.597	25	20.000	1.444
26	21.300	1.240	27	22.000	1.097	28	23.000	0.865						

ISOBAR = 25.000(PSIA) 3600.0PSFA

1	27.673	0.000	2	48.341	0.000	3	27.664	0.102	4	48.338	0.105	5	27.677	0.204
6	48.565	0.209	7	27.629	0.305	8	49.021	0.314	9	27.601	0.407	10	49.759	0.419
11	27.532	0.509	12	27.385	0.611	13	27.277	0.712	14	27.094	0.814	15	26.854	0.915
16	26.650	1.017	17	26.320	1.118	18	25.881	1.219	19	25.345	1.319	20	24.417	1.419
21	22.997	1.518	22	20.900	1.614	23	29.475	1.633	24	34.147	1.643	25	19.732	1.713
26	27.570	1.730	27	35.003	1.747	28	18.629	1.811	29	26.610	1.830	30	35.294	1.851
31	17.725	1.509	32	26.160	1.930	33	35.489	1.954	34	16.843	2.014	35	26.125	2.032
36	35.497	2.057	37	17.000	1.963	38	18.000	1.862	39	19.000	1.769	40	20.009	1.685
41	21.000	1.604	42	22.000	1.556	43	23.000	1.512	44	24.000	1.452	45	25.000	1.360
46	26.000	1.192	47	27.000	0.852	48	27.030	1.781	49	28.000	1.720	50	29.000	1.650
51	30.000	1.615	52	31.000	1.594	53	32.000	1.585	54	33.009	1.593	55	34.000	1.632
56	35.000	1.747	57	49.000	0.309	58	50.000	0.445						

ISOBAR = 20.000(PSIA) 2880.0PSFA

1	33.600	0.000	2	44.125	0.000	3	33.587	0.103	4	44.128	0.104	5	33.609	0.205
6	44.025	0.208	7	33.596	0.308	8	43.715	0.312	9	33.580	0.410	10	43.243	0.416
11	33.638	0.513	12	42.449	0.519	13	33.728	0.616	14	41.212	0.622	15	34.114	0.719
16	39.185	0.724	17	49.787	1.467	18	49.562	1.571	19	49.159	1.675	20	49.051	1.779
21	48.899	1.889	22	48.851	1.988	23	17.162	2.039	24	18.796	2.912	25	19.940	2.015

26	21.177	2.019	27	48.830	2.093	28	18.000	1.953	29	20.000	1.993	30	21.000	1.943
31	34.000	0.699	32	35.000	0.794	33	36.000	0.797	34	37.000	0.787	35	38.000	0.763
36	39.000	0.731	37	40.000	0.689	38	41.000	0.636	39	42.000	0.563	40	43.000	0.454
41	44.000	0.219	42	49.000	1.814	43	50.000	1.439						

RETURN FROM "ISOBAR"

OUTPUT FROM DATA SET NO. 14

(P/PO) WALL/AXIS RESPECTIVELY

	1	4	12	14	16	17	18	20	22
0	0.9268	0.9059	0.7931	0.7312	0.5971	0.5339	0.4562	0.4418	0.4296
	0.9430	0.9219	0.8071	0.7440	0.6075	0.5433	0.4642	0.4496	0.4371
1	0.9280	0.9110	0.8070	0.7534	0.5733	0.3926	0.3604	0.4359	0.4234
	0.9443	0.9229	0.8107	0.7502	0.6161	0.5433	0.4583	0.4433	0.4310
2	0.9282	0.9126	0.8111	0.7580	0.6099	0.3536	0.3443	0.4294	0.4175
	0.9445	0.9221	0.8127	0.7543	0.6277	0.5452	0.4625	0.4371	0.4250
3	0.9289	0.9136	0.8152	0.7624	0.6293	0.3318	0.3270	0.4233	0.4116
	0.9452	0.9205	0.8133	0.7566	0.6372	0.5491	0.4661	0.4311	0.4190
4	0.9295	0.9148	0.8189	0.7683	0.6407	0.3158	0.3085	0.4166	0.4059
	0.9458	0.9197	0.8136	0.7581	0.6451	0.5541	0.4697	0.4257	0.4132
5	0.9298	0.9159	0.8211	0.7725	0.6497	0.3038	0.2916	0.4090	0.4002
	0.9462	0.9188	0.8132	0.7595	0.6519	0.5594	0.4737	0.4210	0.4075
6	0.9299	0.9167	0.8232	0.7752	0.6575	0.2952	0.2775	0.3999	0.3946
	0.9463	0.9177	0.8120	0.7581	0.6577	0.5647	0.4942	0.4172	0.4019
7	0.9299	0.9173	0.8250	0.7772	0.6641	0.2597	0.2668	0.3893	0.3889
	0.9463	0.9166	0.8106	0.7574	0.6628	0.5705	0.5009	0.4144	0.3966
8	0.9299	0.9179	0.8266	0.7788	0.6691	0.2866	0.2580	0.3772	0.3642
	0.9462	0.9153	0.8090	0.7564	0.6672	0.5774	0.5153	0.4129	0.3925
9	0.9297	0.9185	0.8280	0.7800	0.6726	0.2852	0.2512	0.3692	0.3841
	0.9461	0.9140	0.8073	0.7550	0.6710	0.5845	0.5279	0.4184	0.3943
10	0.9296	0.9191	0.8293	0.7808	0.6752	0.2851	0.2468	0.3625	0.3830
	0.9459	0.9125	0.8057	0.7538	0.6746	0.5897	0.5306	0.4290	0.3965
11	0.9295	0.9197	0.8305	0.7815	0.6773	0.2858	0.2442	0.3554	0.3805
	0.9458	0.9111	0.8043	0.7529	0.6778	0.5939	0.5348	0.4412	0.3989
12	0.9294	0.9203	0.8317	0.7821	0.6788	0.2871	0.2426	0.3484	0.3770
	0.9457	0.9097	0.8030	0.7523	0.6808	0.5975	0.5247	0.4565	0.4022
13	0.9293	0.9210	0.8327	0.7826	0.6799	0.2886	0.2418	0.3420	0.3726
	0.9457	0.9083	0.8019	0.7519	0.6835	0.6007	0.5277	0.4687	0.4047
14	0.9293	0.9217	0.8337	0.7831	0.6807	0.2902	0.2412	0.3363	0.3673
	0.9456	0.9072	0.8011	0.7516	0.6861	0.6034	0.5311	0.4924	0.4124
15	0.9293	0.9224	0.8346	0.7835	0.6799	0.2916	0.2407	0.3317	0.3616
	0.9456	0.9062	0.8005	0.7521	0.6865	0.6058	0.5432	0.4945	0.4196
16	0.9293	0.9230	0.8354	0.7840	0.6788	0.2926	0.2402	0.3280	0.3559
	0.9456	0.9054	0.8002	0.7527	0.6864	0.6089	0.5583	0.5058	0.4272
17	0.9293	0.9236	0.8362	0.7844	0.6785	0.2934	0.2397	0.3251	0.3494
	0.9457	0.9048	0.8002	0.7535	0.6865	0.6130	0.5697	0.5167	0.4358
18	0.9294	0.9242	0.8370	0.7849	0.6785	0.2939	0.2392	0.3227	0.3435
	0.9457	0.9043	0.8005	0.7545	0.6874	0.6176	0.5805	0.5293	0.4446
19	0.9296	0.9249	0.8377	0.7856	0.6788	0.2943	0.2386	0.3206	0.3382
	0.9459	0.9041	0.8011	0.7556	0.6890	0.6227	0.5910	0.5191	0.4535
20	0.9297	0.9256	0.8384	0.7863	0.6792	0.2945	0.2379	0.3196	0.3335
	0.9460	0.9039	0.8018	0.7569	0.6912	0.6283	0.6012	0.5478	0.4621
21	0.9299	0.9264	0.8390	0.7870	0.6797	0.2946	0.2370	0.3166	0.3296
	0.9462	0.9039	0.8027	0.7583	0.6940	0.6343	0.6110	0.5632	0.4704
22	0.9300	0.9272	0.8396	0.7878	0.6804	0.2946	0.2361	0.3144	0.3265
	0.9463	0.9038	0.8036	0.7597	0.6972	0.6407	0.6204	0.5764	0.4776
23	0.9302	0.9279	0.8402	0.7885	0.6811	0.2946	0.2355	0.3120	0.3240
	0.9465	0.9038	0.8047	0.7611	0.7008	0.6476	0.6294	0.5901	0.4857
24	0.9304	0.9286	0.8407	0.7892	0.6819	0.2946	0.2346	0.3096	0.3219
	0.9467	0.9037	0.8058	0.7626	0.7048	0.6544	0.6384	0.6024	0.4927
25	0.9305	0.9292	0.8412	0.7899	0.6826	0.2946	0.2339	0.3072	0.3201
	0.9465	0.9037	0.8068	0.7642	0.7091	0.6615	0.6472	0.6134	0.4987

0.9307	0.9298	0.8417	0.7904	0.6434	0.2946	0.2334	0.3049	0.3183	26
0.9470	0.9037	0.8079	0.7639	0.7136	0.6680	0.6359	0.6235	0.5023	
0.9308	0.9299	0.8421	0.7909	0.6840	0.2948	0.2331	0.3027	0.3165	27
0.9472	0.9038	0.8090	0.7676	0.7182	0.6762	0.6646	0.6325	0.5083	
0.9310	0.9301	0.8425	0.7913	0.6846	0.2949	0.2329	0.3008	0.3146	28
0.9473	0.9040	0.8100	0.7695	0.7229	0.6836	0.6731	0.6404	0.5141	
0.9311	0.9303	0.8428	0.7915	0.6852	0.2952	0.2327	0.2991	0.3125	29
0.9475	0.9044	0.8110	0.7715	0.7277	0.6910	0.6814	0.6472	0.5436	
0.9313	0.9304	0.8431	0.7917	0.6856	0.2955	0.2327	0.2975	0.3105	30
0.9476	0.9049	0.8121	0.7736	0.7326	0.6984	0.6894	0.6532	0.5577	
0.9314	0.9306	0.8434	0.7918	0.6860	0.2958	0.2328	0.2962	0.3084	31
0.9477	0.9055	0.8131	0.7759	0.7375	0.7057	0.6971	0.6588	0.5687	
0.9315	0.9308	0.8436	0.7919	0.6863	0.2961	0.2329	0.2951	0.3064	32
0.9478	0.9062	0.8143	0.7783	0.7424	0.7127	0.7043	0.6639	0.5763	
0.9316	0.9311	0.8437	0.7919	0.6865	0.2965	0.2330	0.2941	0.3046	33
0.9479	0.9067	0.8155	0.7809	0.7474	0.7193	0.7112	0.6687	0.5814	
0.9317	0.9313	0.8438	0.7918	0.6866	0.2969	0.2331	0.2932	0.3029	34
0.9480	0.9071	0.8168	0.7836	0.7522	0.7260	0.7177	0.6731	0.5851	
0.9318	0.9314	0.8439	0.7917	0.6866	0.2972	0.2332	0.2924	0.3014	35
0.9481	0.9074	0.8182	0.7865	0.7570	0.7322	0.7237	0.6773	0.5878	
0.9319	0.9315	0.8439	0.7916	0.6865	0.2974	0.2332	0.2917	0.3001	36
0.9482	0.9075	0.8198	0.7896	0.7617	0.7380	0.7292	0.6811	0.5898	
0.9320	0.9314	0.8439	0.7915	0.6863	0.2976	0.2332	0.2910	0.2990	37
0.9483	0.9075	0.8215	0.7927	0.7662	0.7434	0.7343	0.6846	0.5912	
0.9321	0.9312	0.8438	0.7914	0.6861	0.2978	0.2331	0.2903	0.2980	38
0.9484	0.9075	0.8233	0.7959	0.7705	0.7483	0.7390	0.6878	0.5921	
0.9321	0.9310	0.8437	0.7912	0.6858	0.2978	0.2330	0.2896	0.2971	39
0.9485	0.9076	0.8252	0.7991	0.7745	0.7528	0.7431	0.6908	0.5927	
0.9322	0.9307	0.8436	0.7911	0.6855	0.2978	0.2329	0.2888	0.2965	40
0.9486	0.9078	0.8273	0.8024	0.7783	0.7568	0.7468	0.6936	0.5929	
0.9323	0.9305	0.8434	0.7909	0.6852	0.2978	0.2327	0.2880	0.2955	41
0.9487	0.9082	0.8294	0.8056	0.7817	0.7604	0.7501	0.6960	0.5929	
0.9324	0.9304	0.8432	0.7907	0.6849	0.2977	0.2324	0.2871	0.2948	42
0.9487	0.9087	0.8317	0.8086	0.7849	0.7635	0.7529	0.6982	0.5927	
0.9324	0.9303	0.8430	0.7905	0.6846	0.2976	0.2321	0.2863	0.2941	43
0.9488	0.9093	0.8339	0.8115	0.7876	0.7661	0.7553	0.7001	0.5922	
0.9325	0.9303	0.8428	0.7904	0.6843	0.2975	0.2318	0.2854	0.2934	44
0.9488	0.9098	0.8362	0.8142	0.7899	0.7684	0.7572	0.7017	0.5916	
0.9325	0.9304	0.8426	0.7902	0.6841	0.2974	0.2315	0.2848	0.2927	45
0.9489	0.9102	0.8384	0.8166	0.7919	0.7701	0.7588	0.7031	0.5908	
0.9326	0.9304	0.8423	0.7900	0.6839	0.2972	0.2312	0.2842	0.2920	46
0.9489	0.9104	0.8406	0.8188	0.7934	0.7715	0.7600	0.7041	0.5898	
0.9326	0.9304	0.8421	0.7899	0.6838	0.2971	0.2309	0.2838	0.2914	47
0.9490	0.9104	0.8425	0.8206	0.7946	0.7725	0.7608	0.7050	0.5887	
0.9326	0.9302	0.8418	0.7897	0.6836	0.2969	0.2306	0.2834	0.2909	48
0.9490	0.9103	0.8443	0.8220	0.7934	0.7731	0.7615	0.7055	0.5875	
0.9327	0.9298	0.8416	0.7895	0.6835	0.2968	0.2304	0.2831	0.2904	49
0.9490	0.9103	0.8459	0.8230	0.7959	0.7734	0.7614	0.7058	0.5861	
0.9327	0.9292	0.8413	0.7894	0.6834	0.2967	0.2301	0.2828	0.2900	50
0.9490	0.9105	0.8472	0.8237	0.7960	0.7733	0.7613	0.7059	0.5848	
0.9327	0.9287	0.8411	0.7892	0.6834	0.2966	0.2299	0.2825	0.2877	51
0.9491	0.9111	0.8482	0.8241	0.7959	0.7730	0.7609	0.7057	0.5835	
0.9327	0.9282	0.8409	0.7891	0.6833	0.2966	0.2297	0.2823	0.2894	52
0.9491	0.9120	0.8489	0.8241	0.7955	0.7724	0.7603	0.7053	0.5822	
0.9327	0.9279	0.8406	0.7889	0.6833	0.2965	0.2295	0.2822	0.2893	53
0.9491	0.9133	0.8492	0.8238	0.7948	0.7716	0.7595	0.7047	0.5810	
0.9327	0.9278	0.8403	0.7888	0.6832	0.2965	0.2294	0.2821	0.2892	54
0.9491	0.9148	0.8493	0.8232	0.7940	0.7707	0.7585	0.7039	0.5798	
0.9327	0.9279	0.8403	0.7887	0.6832	0.2965	0.2293	0.2819	0.2891	55
0.9491	0.9162	0.8490	0.8224	0.7930	0.7696	0.7575	0.7029	0.5785	
0.9327	0.9281	0.8401	0.7885	0.6831	0.2965	0.2292	0.2819	0.2891	56
0.9491	0.9173	0.8485	0.8214	0.7919	0.7683	0.7563	0.7016	0.5773	
0.9327	0.9282	0.8400	0.7884	0.6831	0.2965	0.2292	0.2818	0.2892	57
0.9490	0.9179	0.8478	0.8203	0.7907	0.7673	0.7530	0.7001	0.5761	
0.9327	0.9282	0.8398	0.7883	0.6830	0.2965	0.2292	0.2818	0.2893	58
0.9490	0.9180	0.8469	0.8191	0.7894	0.7636	0.7536	0.6984	0.5748	

0.9328	0.9279	0.8397	0.7982	0.6830	0.2966	0.2292	0.2818	0.2894	59
0.9490	0.9177	0.8459	0.8170	0.7880	0.7642	0.7522	0.6964	0.5735	
0.9326	0.9276	0.8396	0.7881	0.6830	0.2966	0.2292	0.2819	0.2895	60
0.9490	0.9173	0.8448	0.8165	0.7867	0.7627	0.7508	0.6943	0.5721	
0.9326	0.9266	0.8395	0.7860	0.6829	0.2967	0.2292	0.2819	0.2897	61
0.9490	0.9171	0.8436	0.8152	0.7853	0.7613	0.7494	0.6922	0.5706	
0.9326	0.9259	0.8394	0.7879	0.6829	0.2967	0.2293	0.2820	0.2899	62
0.9489	0.9173	0.8424	0.8139	0.7840	0.7598	0.7479	0.6901	0.5690	
0.9326	0.9254	0.8394	0.7879	0.6829	0.2968	0.2294	0.2822	0.2901	63
0.9489	0.9180	0.8412	0.8126	0.7827	0.7584	0.7464	0.6880	0.5675	
0.9325	0.9254	0.8393	0.7879	0.6829	0.2969	0.2295	0.2825	0.2903	64
0.9489	0.9191	0.8400	0.8113	0.7814	0.7570	0.7450	0.6859	0.5657	
0.9325	0.9258	0.8393	0.7879	0.6829	0.2969	0.2296	0.2825	0.2906	65
0.9489	0.9201	0.8389	0.8102	0.7802	0.7557	0.7435	0.6839	0.5640	
0.9325	0.9264	0.8393	0.7879	0.6829	0.2970	0.2298	0.2826	0.2908	66
0.9489	0.9206	0.8378	0.8091	0.7791	0.7544	0.7421	0.6819	0.5617	
0.9325	0.9271	0.8392	0.7879	0.6829	0.2971	0.2299	0.2828	0.2910	67
0.9489	0.9201	0.8369	0.8081	0.7780	0.7531	0.7407	0.6800	0.5589	
0.9325	0.9276	0.8392	0.7879	0.6830	0.2972	0.2300	0.2830	0.2913	68
0.9488	0.9187	0.8359	0.8072	0.7770	0.7519	0.7394	0.6783	0.5559	
0.9325	0.9277	0.8392	0.7880	0.6830	0.2973	0.2301	0.2832	0.2915	69
0.9488	0.9166	0.8351	0.8063	0.7760	0.7508	0.7382	0.6766	0.5526	
0.9324	0.9272	0.8393	0.7880	0.6830	0.2974	0.2302	0.2834	0.2918	70
0.9488	0.9143	0.8344	0.8056	0.7751	0.7497	0.7371	0.6750	0.5470	
0.9324	0.9264	0.8393	0.7881	0.6831	0.2975	0.2303	0.2835	0.2920	71
0.9488	0.9125	0.8337	0.8049	0.7743	0.7488	0.7381	0.6735	0.5410	
0.9324	0.9254	0.8393	0.7882	0.6831	0.2976	0.2303	0.2837	0.2922	72
0.9488	0.9115	0.8332	0.8043	0.7735	0.7479	0.7352	0.6718	0.5135	
0.9324	0.9246	0.8394	0.7883	0.6832	0.2976	0.2304	0.2839	0.2925	73
0.9488	0.9116	0.8327	0.8038	0.7728	0.7471	0.7344	0.6698	0.5028	
0.9324	0.9244	0.8394	0.7884	0.6832	0.2977	0.2305	0.2841	0.2928	74
0.9458	0.9128	0.8323	0.8033	0.7722	0.7464	0.7337	0.6676	0.4943	
0.9324	0.9249	0.8395	0.7884	0.6833	0.2978	0.2306	0.2843	0.2930	75
0.9487	0.9147	0.8319	0.8029	0.7717	0.7457	0.7330	0.6653	0.4893	
0.9324	0.9260	0.8395	0.7885	0.6834	0.2979	0.2308	0.2845	0.2933	76
0.9487	0.9164	0.8316	0.8025	0.7712	0.7452	0.7324	0.6630	0.4864	
0.9324	0.9272	0.8396	0.7886	0.6834	0.2979	0.2307	0.2847	0.2938	77
0.9487	0.9170	0.8313	0.8022	0.7708	0.7447	0.7317	0.6609	0.4845	
0.9324	0.9283	0.8396	0.7887	0.6835	0.2980	0.2307	0.2849	0.2939	78
0.9487	0.9162	0.8311	0.8019	0.7704	0.7442	0.7311	0.6589	0.4833	
0.9323	0.9289	0.8397	0.7887	0.6835	0.2981	0.2307	0.2851	0.2942	79
0.9487	0.9140	0.8310	0.8017	0.7701	0.7438	0.7308	0.6572	0.4827	
0.9323	0.9288	0.8397	0.7888	0.6835	0.2981	0.2308	0.2853	0.2945	80
0.9487	0.9112	0.8308	0.8015	0.7698	0.7436	0.7309	0.6558	0.4824	
0.9323	0.9280	0.8398	0.7889	0.6836	0.2982	0.2306	0.2854	0.2948	81
0.9487	0.9086	0.8308	0.8014	0.7696	0.7430	0.7295	0.6546	0.4824	
0.9323	0.9265	0.8398	0.7889	0.6838	0.2983	0.2308	0.2856	0.2952	82
0.9487	0.9067	0.8307	0.8013	0.7694	0.7427	0.7290	0.6537	0.6824	
0.9323	0.9250	0.8399	0.7889	0.6837	0.2983	0.2309	0.2858	0.2955	83
0.9487	0.9062	0.8307	0.8012	0.7692	0.7424	0.7285	0.6530	0.4826	
0.9323	0.9239	0.8399	0.7890	0.6837	0.2984	0.2309	0.2860	0.2958	84
0.9487	0.9075	0.8307	0.8011	0.7691	0.7421	0.7281	0.6525	0.4829	
0.9323	0.9240	0.8399	0.7890	0.6837	0.2984	0.2309	0.2861	0.2962	85
0.9487	0.9108	0.8307	0.8010	0.7689	0.7419	0.7278	0.6522	0.4831	
0.9323	0.9253	0.8400	0.7890	0.6837	0.2984	0.2310	0.2863	0.2965	86
0.9487	0.9147	0.8307	0.8010	0.7688	0.7417	0.7275	0.6521	0.4835	
0.9323	0.9272	0.8400	0.7890	0.6837	0.2985	0.2310	0.2864	0.2968	87
0.9486	0.9179	0.8307	0.8010	0.7687	0.7418	0.7273	0.6520	0.4838	
0.9323	0.9291	0.8400	0.7890	0.6837	0.2985	0.2310	0.2866	0.2972	88
0.9486	0.9188	0.8307	0.8010	0.7687	0.7415	0.7272	0.6521	0.4842	
0.9323	0.9304	0.8400	0.7890	0.6837	0.2985	0.2311	0.2867	0.2975	89
0.9486	0.9173	0.8308	0.8010	0.7686	0.7414	0.7271	0.6522	0.4846	
0.9323	0.9312	0.8400	0.7890	0.6837	0.2986	0.2311	0.2869	0.2978	90
0.9486	0.9139	0.8308	0.8011	0.7686	0.7416	0.7271	0.6526	0.4851	
0.9323	0.9304	0.8401	0.7890	0.6837	0.2986	0.2311	0.2870	0.2980	91
0.9486	0.9100	0.8309	0.8011	0.7684	0.7414	0.7272	0.6527	0.4855	

0.9323	0.9285	0.8401	0.7890	0.6837	0.2986	0.2311	0.2871	0.2983	92
0.9486	0.9064	0.8311	0.8012	0.7686	0.7414	0.7273	0.6529	0.4859	
0.9322	0.9256	0.8401	0.7890	0.6837	0.2986	0.2312	0.2872	0.2986	93
0.9486	0.9038	0.8312	0.8013	0.7687	0.7415	0.7274	0.6532	0.4863	
0.9322	0.9230	0.8401	0.7890	0.6837	0.2986	0.2312	0.2873	0.2988	94
0.9486	0.9030	0.8313	0.8014	0.7688	0.7416	0.7276	0.6535	0.4867	
0.9322	0.9217	0.8401	0.7890	0.6837	0.2986	0.2312	0.2874	0.2990	95
0.9486	0.9055	0.8315	0.8015	0.7689	0.7418	0.7278	0.6539	0.4870	
0.9322	0.9226	0.8402	0.7890	0.6837	0.2986	0.2312	0.2875	0.2992	96
0.9486	0.9116	0.8316	0.8016	0.7690	0.7420	0.7281	0.6542	0.4875	
0.9322	0.9254	0.8402	0.7890	0.6837	0.2986	0.2312	0.2876	0.2994	97
0.9486	0.9186	0.8317	0.8017	0.7692	0.7422	0.7284	0.6546	0.4876	
0.9322	0.9284	0.8402	0.7889	0.6837	0.2986	0.2312	0.2876	0.2996	98
0.9486	0.9232	0.8318	0.8018	0.7693	0.7424	0.7287	0.6549	0.4879	
0.9322	0.9315	0.8402	0.7889	0.6837	0.2986	0.2312	0.2877	0.2997	99
0.9486	0.9237	0.8319	0.8020	0.7695	0.7426	0.7290	0.6552	0.4881	
0.9322	0.9322	0.8402	0.7889	0.6836	0.2985	0.2312	0.2877	0.2998	100
0.9486	0.9201	0.8320	0.8021	0.7697	0.7429	0.7292	0.6556	0.4882	
0.9322	0.9322	0.8402	0.7889	0.6836	0.2985	0.2312	0.2878	0.2999	101
0.9486	0.9142	0.8322	0.8023	0.7699	0.7431	0.7295	0.6559	0.4884	
0.9322	0.9320	0.8402	0.7889	0.6836	0.2985	0.2312	0.2878	0.3000	102
0.9486	0.9084	0.8323	0.8025	0.7701	0.7433	0.7298	0.6562	0.4886	
0.9323	0.9285	0.8402	0.7889	0.6836	0.2984	0.2312	0.2878	0.3001	103
0.9486	0.9030	0.8325	0.8026	0.7703	0.7436	0.7300	0.6565	0.4887	
0.9323	0.9227	0.8402	0.7889	0.6836	0.2984	0.2312	0.2879	0.3001	104
0.9486	0.8978	0.8327	0.8028	0.7705	0.7438	0.7303	0.6567	0.4888	
0.9323	0.9146	0.8403	0.7889	0.6836	0.2984	0.2311	0.2878	0.3002	105
0.9486	0.8931	0.8328	0.8030	0.7707	0.7440	0.7305	0.6570	0.4890	
0.9323	0.9114	0.8403	0.7889	0.6835	0.2983	0.2311	0.2877	0.3002	106
0.9486	0.8970	0.8329	0.8031	0.7709	0.7442	0.7307	0.6572	0.4891	
0.9323	0.9181	0.8403	0.7889	0.6835	0.2983	0.2311	0.2877	0.3002	107
0.9486	0.9132	0.8330	0.8033	0.7711	0.7444	0.7308	0.6574	0.4892	
0.9323	0.9249	0.8403	0.7889	0.6835	0.2983	0.2310	0.2877	0.3002	108
0.9486	0.9257	0.8331	0.8034	0.7713	0.7446	0.7310	0.6575	0.4893	
0.9323	0.9296	0.8403	0.7889	0.6835	0.2982	0.2310	0.2876	0.3002	109
0.9486	0.9329	0.8332	0.8036	0.7714	0.7447	0.7311	0.6576	0.4894	
0.9323	0.9323	0.8403	0.7889	0.6835	0.2982	0.2310	0.2876	0.3001	110
0.9486	0.9308	0.8332	0.8037	0.7716	0.7448	0.7312	0.6577	0.4896	
0.9323	0.9323	0.8403	0.7889	0.6835	0.2982	0.2309	0.2875	0.3001	111
0.9486	0.9229	0.8333	0.8039	0.7717	0.7449	0.7312	0.6578	0.4897	
0.9323	0.9323	0.8403	0.7889	0.6835	0.2981	0.2309	0.2875	0.3001	112
0.9487	0.9135	0.8334	0.8040	0.7718	0.7450	0.7313	0.6578	0.4898	
0.9323	0.9323	0.8403	0.7889	0.6835	0.2981	0.2309	0.2874	0.3000	113
0.9487	0.9064	0.8336	0.8041	0.7719	0.7451	0.7313	0.6578	0.4898	
0.9323	0.9287	0.8403	0.7889	0.6834	0.2981	0.2309	0.2874	0.2999	114
0.9487	0.8992	0.8337	0.8042	0.7720	0.7452	0.7314	0.6578	0.4900	
0.9323	0.9161	0.8403	0.7889	0.6834	0.2981	0.2308	0.2873	0.2999	115
0.9487	0.8867	0.8338	0.8043	0.7720	0.7452	0.7314	0.6578	0.4900	
0.9323	0.9053	0.8404	0.7889	0.6834	0.2980	0.2308	0.2873	0.2998	116
0.9487	0.8845	0.8339	0.8043	0.7721	0.7452	0.7314	0.6578	0.4901	
0.9323	0.9030	0.8404	0.7888	0.6834	0.2980	0.2308	0.2872	0.2998	117
0.9487	0.8949	0.8339	0.8044	0.7721	0.7453	0.7314	0.6578	0.4902	
0.9323	0.9158	0.8404	0.7888	0.6834	0.2980	0.2307	0.2871	0.2997	118
0.9487	0.9197	0.8339	0.8044	0.7721	0.7453	0.7313	0.6577	0.4903	
0.9323	0.9256	0.8403	0.7888	0.6834	0.2980	0.2307	0.2871	0.2996	119
0.9487	0.9358	0.8339	0.8044	0.7721	0.7453	0.7313	0.6577	0.4904	
0.9323	0.9308	0.8403	0.7888	0.6834	0.2980	0.2307	0.2870	0.2996	120
0.9487	0.9415	0.8338	0.8044	0.7721	0.7453	0.7313	0.6577	0.4905	
0.9323	0.9323	0.8403	0.7888	0.6834	0.2980	0.2307	0.2870	0.2995	121
0.9487	0.9335	0.8337	0.8044	0.7721	0.7453	0.7313	0.6377	0.4905	
0.9323	0.9323	0.8402	0.7889	0.6834	0.2980	0.2307	0.2869	0.2995	122
0.9487	0.9198	0.8337	0.8045	0.7721	0.7452	0.7313	0.6577	0.4906	
0.9323	0.9323	0.8402	0.7889	0.6834	0.2980	0.2307	0.2869	0.2994	123
0.9487	0.9073	0.8338	0.8044	0.7721	0.7452	0.7312	0.6577	0.4907	
0.9323	0.9323	0.8403	0.7889	0.6834	0.2979	0.2307	0.2868	0.2994	124
0.9487	0.9028	0.8338	0.8044	0.7721	0.7452	0.7312	0.6577	0.4908	

0.9323	0.9301	C.8403	0.7889	0.6834	0.2979	0.2307	0.2868	0.2993	125
0.9487	0.8974	0.8329	0.8044	0.7721	0.7452	C.7312	0.6578	0.4909	
0.9323	0.9151	0.8403	0.7889	C.6834	0.2979	0.2307	0.2868	0.2993	126
0.9487	0.8874	0.8340	0.8043	0.7720	0.7452	0.7312	0.6578	0.4909	
0.9323	0.9001	C.8403	0.7889	0.6834	0.2979	C.2307	0.2867	0.2992	127
0.9487	0.8873	C.8340	0.8043	0.7720	0.7451	0.7312	0.6578	0.4910	
0.9323	0.8559	0.8403	0.7889	0.6834	0.2980	0.2307	0.2867	0.2992	128
0.9487	0.9009	0.8339	0.8042	0.7720	0.7451	0.7312	0.6579	0.4911	
0.9323	0.9095	0.8403	0.7889	0.6835	0.2980	0.2307	C.2867	0.2992	129
0.9487	0.9286	0.8338	0.8042	0.7720	0.7451	0.7312	0.6579	0.4912	
0.9323	0.9258	0.8403	0.7889	0.6835	0.2980	0.2307	0.2867	0.2991	130
0.9487	C.9459	0.8336	0.8041	0.7719	C.7451	0.7312	0.6580	0.4913	
0.9323	0.9319	C.8402	0.7889	0.6835	0.2980	0.2307	C.2867	0.2991	131
0.9487	0.9484	C.8334	0.8041	0.7719	0.7451	0.7312	0.6580	0.4913	
0.9323	0.9323	0.8401	0.7889	0.6835	0.2980	C.2307	0.2867	0.2991	132
0.9487	0.9340	0.8332	C.8041	0.7719	C.7450	0.7312	0.6581	0.4914	
0.9323	0.9323	C.8401	0.7889	0.6835	0.2980	0.2307	0.2867	0.2991	133
0.9487	0.9064	0.8331	C.8040	0.7719	0.7450	0.7312	0.6581	0.4914	
0.9323	0.9323	C.8400	0.7889	0.6835	0.2980	0.2307	0.2866	0.2991	134
0.9487	0.8890	0.8331	0.8040	0.7718	0.7450	C.7312	0.6582	0.4915	
0.9323	0.9323	C.8400	0.7889	0.6835	0.2980	0.2307	0.2866	0.2990	135
0.9487	0.8900	C.8332	0.8040	0.7718	0.7450	0.7312	0.6582	0.4915	
0.9323	0.9314	0.8400	0.7889	0.6835	0.2980	0.2307	0.2866	0.2990	136
C.9487	0.8929	C.8334	C.8039	0.7718	0.7450	0.7312	0.6582	0.4916	
0.9323	0.9156	C.8401	0.7889	0.6835	0.2980	C.2307	0.2867	0.2990	137
0.9487	0.8900	0.8335	C.8039	0.7717	0.7450	0.7312	0.6582	0.4916	
C.9323	C.9000	C.8401	0.7889	0.6835	0.2980	0.2307	0.2867	0.2990	138
0.9487	0.8977	0.8336	C.8038	0.7717	0.7449	0.7312	0.6583	0.4916	
0.9323	0.8912	C.8401	0.7888	0.6835	0.2981	0.2308	C.2867	0.2990	139
C.9486	0.9139	0.8335	C.8037	C.7717	0.7449	C.7312	0.6583	0.4916	
0.9323	0.9044	C.8400	C.7888	0.6835	C.2981	0.2308	C.2867	C.2990	140
0.9486	0.9407	C.8334	0.8037	C.7717	0.7449	C.7311	0.6583	0.4916	
0.9323	C.9220	0.8399	C.7888	0.6835	0.2981	C.2308	C.2867	0.2991	141
0.9486	0.9486	0.8332	C.8036	0.7716	0.7449	0.7311	0.6583	0.4916	
0.9323	0.9323	C.8398	C.7888	0.6835	0.2981	C.2308	0.2867	0.2991	142
0.9486	0.9486	C.8330	0.8036	C.7716	0.7449	0.7311	0.6583	0.4916	
0.9323	0.9323	0.8397	0.7888	0.6835	C.2981	0.2308	0.2867	0.2991	143
0.9486	0.9281	0.8328	C.8036	0.7716	0.7449	0.7311	0.6583	0.4916	
0.9323	0.9323	C.8396	C.7887	0.6835	C.2981	0.2308	0.2867	0.2991	144
0.9486	0.8865	0.8327	0.8036	0.7716	0.7448	C.7311	0.6583	0.4915	
0.9323	0.9323	C.8395	0.7887	0.6835	0.2981	0.2308	0.2867	0.2991	145
0.9486	C.8631	0.8327	0.8036	0.7715	0.7448	C.7311	0.6583	0.4915	
0.9323	0.9323	0.8394	C.7887	0.6835	0.2981	0.2308	0.2868	0.2991	146
0.9486	0.8879	0.8328	0.8036	0.7715	0.7448	0.7311	0.6583	0.4914	
0.9323	0.9323	0.8394	0.7886	0.6835	C.2981	0.2308	0.2868	0.2991	147
0.9486	0.8843	0.8330	0.8036	0.7715	0.7448	0.7310	0.6582	0.4914	
0.9323	0.9196	0.8393	0.7886	0.6835	0.2981	0.2308	0.2868	0.2991	148
0.9486	0.8931	C.8332	0.8036	0.7715	C.7447	0.7310	0.6582	0.4913	
0.9323	0.9036	0.8393	C.7885	0.6834	0.2981	C.2308	0.2868	0.2991	149
0.9486	0.9077	C.8334	0.8035	C.7714	0.7447	0.7310	0.6582	0.4913	
0.9323	C.8904	0.8392	0.7885	C.6834	0.2981	0.2308	0.2868	0.2991	150
C.9486	0.9288	C.8335	0.8035	0.7714	0.7447	0.7310	0.6581	0.4912	
0.9323	0.8987	0.8391	0.7884	0.6834	0.2981	0.2308	C.2868	0.2991	151
0.9486	0.9486	0.8335	0.8035	0.7714	0.7447	0.7310	0.6581	0.4911	
C.9323	0.9142	0.8390	0.7883	0.6834	0.2981	C.2308	0.2868	C.2991	152
0.9486	0.9486	0.8335	C.8035	C.7714	0.7446	0.7310	0.6581	0.4911	
0.9323	0.9290	0.8388	0.7882	0.6833	0.2980	C.2308	C.2868	0.2991	153
0.9486	0.9486	0.8333	0.8035	C.7714	0.7446	0.7309	0.6580	0.4910	
0.9323	C.9323	0.8386	0.7882	0.6833	0.2980	C.2308	0.2868	0.2991	154
0.9486	0.9232	C.8332	0.8035	0.7714	0.7446	0.7309	0.6580	0.4909	
0.9323	0.9323	0.8384	0.7881	0.6833	0.2980	0.2308	0.2868	0.2991	155
C.9487	0.8744	0.8332	C.8035	0.7714	0.7446	0.7309	0.6579	0.4908	
0.9323	C.9323	0.8383	0.7880	0.6832	0.2980	0.2308	C.2868	0.2991	156
0.9487	0.8450	0.8333	0.8038	0.7714	0.7446	0.7309	0.6579	0.4907	
0.9323	0.9323	C.8381	0.7879	C.6832	0.2980	0.2307	0.2868	0.2991	157
0.9487	0.8561	0.8333	0.8037	0.7714	0.7446	0.7309	0.6579	0.4906	

0.9323	0.9323	0.8380	0.7878	0.6831	0.2979	0.2307	0.2868	0.2990	158
0.9487	0.8785	0.8337	0.8037	0.7714	0.7446	0.7309	0.6578	0.4905	
0.9323	0.9237	0.8379	0.7877	0.6830	0.2979	0.2307	0.2868	0.2990	159
0.9487	0.6995	0.8340	0.8038	0.7714	0.7446	0.7309	0.6578	0.4904	
0.9323	0.9074	0.8378	0.7876	0.6830	0.2978	0.2306	0.2868	0.2990	160
0.9487	0.9183	0.8343	0.8038	0.7714	0.7446	0.7309	0.6577	0.4903	
0.9323	0.8914	0.8377	0.7875	0.6829	0.2978	0.2306	0.2868	0.2990	161
0.9487	0.9442	0.8345	0.8038	0.7714	0.7446	0.7309	0.6577	0.4902	
0.9323	0.8933	0.8376	0.7873	0.6828	0.2978	0.2306	0.2867	0.2989	162
0.9487	0.9487	0.8347	0.8039	0.7714	0.7446	0.7309	0.6577	0.4901	
0.9323	0.9076	0.8374	0.7872	0.6828	0.2977	0.2305	0.2367	0.2989	163
0.9487	0.9487	0.8347	0.8040	0.7715	0.7446	0.7309	0.6576	0.4900	
0.9323	0.9262	0.8372	0.7871	0.6827	0.2976	0.2305	0.2867	0.2988	164
0.9487	0.9487	0.8347	0.8041	0.7715	0.7447	0.7309	0.6576	0.4899	
0.9323	0.9323	0.8370	0.7869	0.6826	0.2976	0.2304	0.2867	0.2988	165
0.9497	0.9185	0.8348	0.8042	0.7716	0.7447	0.7309	0.6576	0.4897	
0.9323	0.9323	0.8368	0.7868	0.6825	0.2975	0.2304	0.2866	0.2987	166
0.9487	0.8641	0.8349	0.8043	0.7716	0.7447	0.7310	0.6575	0.4896	
0.9323	0.9323	0.8366	0.7867	0.6824	0.2975	0.2303	0.2866	0.2987	167
0.9487	0.8347	0.8351	0.8045	0.7717	0.7448	0.7310	0.6575	0.4895	
0.9323	0.9323	0.8364	0.7866	0.6824	0.2974	0.2303	0.2865	0.2986	168
0.9487	0.8472	0.8354	0.8046	0.7715	0.7448	0.7310	0.6575	0.4894	
0.9324	0.9324	0.8363	0.7864	0.6823	0.2973	0.2302	0.2865	0.2985	169
0.9487	0.8746	0.8357	0.8048	0.7718	0.7449	0.7311	0.6575	0.4892	
0.9324	0.9216	0.8363	0.7863	0.6822	0.2972	0.2301	0.2864	0.2984	170
0.9487	0.9027	0.8361	0.8049	0.7719	0.7450	0.7311	0.6574	0.4891	
0.9324	0.9060	0.8362	0.7862	0.6821	0.2972	0.2301	0.2864	0.2983	171
0.9487	0.9230	0.8365	0.8051	0.7720	0.7450	0.7312	0.6574	0.4890	
0.9324	0.8913	0.8362	0.7860	0.6820	0.2971	0.2300	0.2863	0.2982	172
0.9487	0.9487	0.8368	0.8053	0.7721	0.7451	0.7312	0.6574	0.4889	
0.9324	0.8933	0.8361	0.7859	0.6819	0.2970	0.2299	0.2862	0.2981	173
0.9488	0.9488	0.8369	0.8054	0.7723	0.7452	0.7313	0.6574	0.4888	
0.9324	0.9075	0.8360	0.7858	0.6818	0.2969	0.2298	0.2561	0.2980	174
0.9488	0.9488	0.8371	0.8056	0.7724	0.7453	0.7314	0.6574	0.4887	
0.9324	0.9265	0.8358	0.7857	0.6817	0.2968	0.2297	0.2861	0.2979	175
0.9488	0.9488	0.8371	0.8059	0.7725	0.7454	0.7314	0.6574	0.4886	
0.9324	0.9324	0.8356	0.7856	0.6816	0.2968	0.2297	0.2860	0.2978	176
0.9486	0.9138	0.8372	0.5060	0.7726	0.7455	0.7315	0.6574	0.4885	
0.9324	0.9324	0.8355	0.7855	0.6815	0.2967	0.2296	0.2859	0.2977	177
0.9488	0.8617	0.8374	0.8062	0.7728	0.7456	0.7316	0.6574	0.4884	
0.9324	0.9324	0.8354	0.7854	0.6815	0.2966	0.2295	0.2858	0.2976	178
0.9488	0.8345	0.8377	0.5065	0.7729	0.7458	0.7317	0.6574	0.4883	
0.9324	0.9324	0.8353	0.7853	0.6814	0.2965	0.2294	0.2857	0.2975	179
0.9488	0.8477	0.8381	0.8067	0.7731	0.7459	0.7318	0.6574	0.4882	
0.9325	0.9300	0.8353	0.7852	0.6813	0.2964	0.2293	0.2856	0.2974	180
0.9488	0.8785	0.8384	0.8069	0.7732	0.7460	0.7319	0.6574	0.4882	
0.9325	0.9190	0.8354	0.7852	0.6812	0.2963	0.2292	0.2855	0.2972	181
0.9488	0.9094	0.8388	0.8071	0.7734	0.7462	0.7320	0.6575	0.4881	
0.9325	0.9039	0.8354	0.7851	0.6812	0.2963	0.2292	0.2854	0.2971	182
0.9488	0.9358	0.8391	0.8073	0.7736	0.7463	0.7321	0.6575	0.4881	
0.9325	0.8905	0.8355	0.7850	0.6811	0.2962	0.2291	0.2853	0.2970	183
0.9488	0.9488	0.8393	0.8075	0.7737	0.7465	0.7322	0.6575	0.4881	
0.9325	0.8942	0.8355	0.7850	0.6810	0.2961	0.2290	0.2852	0.2969	184
0.9489	0.9489	0.8394	0.8077	0.7739	0.7466	0.7323	0.6576	0.4881	
0.9325	0.9088	0.8355	0.7849	0.6810	0.2960	0.2289	0.2851	0.2969	185
0.9489	0.9489	0.8395	0.8079	0.7741	0.7468	0.7324	0.6576	0.4881	
0.9325	0.9284	0.8354	0.7849	0.6810	0.2960	0.2288	0.2850	0.2966	186
0.9489	0.9489	0.8395	0.8082	0.7743	0.7469	0.7325	0.6577	0.4881	
0.9325	0.9325	0.8353	0.7849	0.6809	0.2959	0.2288	0.2849	0.2965	187
0.9489	0.9055	0.8395	0.8084	0.7744	0.7471	0.7327	0.6578	0.4881	
0.9325	0.9325	0.8352	0.7849	0.6809	0.2958	0.2287	0.2848	0.2964	188
0.9459	0.8581	0.8397	0.8086	0.7746	0.7472	0.7328	0.6578	0.4882	
0.9325	0.9325	0.8352	0.7849	0.6809	0.2958	0.2286	0.2847	0.2963	189
0.9489	0.8358	0.8399	0.8088	0.7748	0.7474	0.7329	0.6579	0.4883	
0.9325	0.9323	0.8352	0.7849	0.6808	0.2957	0.2286	0.2846	0.2962	190
0.9489	0.8551	0.8402	0.8090	0.7750	0.7475	0.7330	0.6580	0.4884	

0.9325	0.9289	0.8353	0.7849	0.6808	0.2957	0.2285	0.2845	0.2961	191
0.9489	0.8885	0.8405	0.5092	0.7751	0.7477	0.7351	0.6581	0.4885	
0.9525	0.9171	0.8354	0.7850	0.6808	0.2957	0.2285	0.2844	0.2960	192
0.9489	0.9188	0.8408	0.8095	0.7753	0.7479	0.7333	0.6582	0.4886	
0.9325	0.9019	0.8555	0.7850	0.6808	0.2956	0.2284	0.2843	0.2959	193
0.9489	0.9489	0.8409	0.8094	0.7754	0.7480	0.7534	0.6583	0.4887	
0.9325	0.8696	0.8356	0.7850	0.6808	0.2956	0.2284	0.2842	0.2958	194
0.9489	0.9489	0.8410	0.8095	0.7756	0.7481	0.7335	0.6584	0.4889	
0.9325	0.8960	0.8356	0.7850	0.6809	0.2956	0.2284	0.2842	0.2957	195
0.9489	0.9489	0.8409	0.8096	0.7757	0.7485	0.7556	0.6585	0.4891	
0.9326	0.9113	0.8356	0.7850	0.6809	0.2956	0.2284	0.2841	0.2956	196
0.9489	0.9489	0.8408	0.8097	0.7759	0.7484	0.7327	0.6586	0.4892	
0.9326	0.9311	0.8355	0.7851	0.6809	0.2956	0.2283	0.2840	0.2956	197
0.9489	0.9465	0.8406	0.8099	0.7760	0.7485	0.7358	0.6587	0.4894	
0.9326	0.9326	0.8355	0.7851	0.6809	0.2956	0.2285	0.2840	0.2955	198
0.9489	0.8967	0.8406	0.8100	0.7761	0.7487	0.7340	0.6589	0.4896	
0.9326	0.9326	0.8554	0.7852	0.6810	0.2956	0.2283	0.2839	0.2955	199
0.9489	0.8544	0.8406	0.8101	0.7762	0.7488	0.7341	0.6590	0.4898	
0.9326	0.9326	0.8354	0.7852	0.6810	0.2956	0.2283	0.2839	0.2954	200
0.9489	0.8383	0.8407	0.8101	0.7763	0.7489	0.7342	0.6591	0.4900	
0.9526	0.9326	0.8354	0.7852	0.6810	0.2956	0.2283	0.2838	0.2954	201
0.9489	0.8645	0.8409	0.8102	0.7764	0.7490	0.7349	0.6595	0.4902	
0.9326	0.9290	0.8355	0.7553	0.6810	0.2956	0.2283	0.2838	0.2953	202
0.9489	0.8597	0.8410	0.8102	0.7754	0.7491	0.7343	0.6594	0.4904	
0.9326	0.9162	0.8356	0.7853	0.6811	0.2957	0.2283	0.2838	0.2953	203
0.9489	0.9291	0.8412	0.8102	0.7765	0.7491	0.7544	0.6595	0.4907	
0.9325	0.9016	0.8357	0.7853	0.6811	0.2957	0.2284	0.2837	0.2953	204
0.9489	0.9489	0.8412	0.8102	0.7765	0.7492	0.7345	0.6597	0.4909	
0.9325	0.8699	0.8358	0.7853	0.6811	0.2957	0.2284	0.2837	0.2953	205
0.9489	0.9489	0.8412	0.8101	0.7766	0.7495	0.7546	0.6598	0.4911	
0.9325	0.8977	0.8358	0.7553	0.6812	0.2957	0.2284	0.2537	0.2953	206
0.9489	0.9489	0.8410	0.8101	0.7766	0.7495	0.7546	0.6599	0.4912	
0.9325	0.9136	0.8357	0.7854	0.6812	0.2958	0.2284	0.2837	0.2953	207
0.9489	0.9489	0.8407	0.8101	0.7766	0.7494	0.7347	0.6600	0.4914	
0.9525	0.9319	0.8357	0.7854	0.6812	0.2958	0.2285	0.2837	0.2953	208
0.9489	0.9159	0.8405	0.9100	0.7766	0.7494	0.7347	0.6602	0.4916	
0.9325	0.9325	0.8356	0.7854	0.6813	0.2958	0.2285	0.2837	0.2953	209
0.9489	0.8864	0.8403	0.8100	0.7766	0.7494	0.7348	0.6605	0.4917	
0.9325	0.9325	0.8355	0.7454	0.6813	0.2959	0.2285	0.2838	0.2953	210
0.9489	0.8513	0.8403	0.8100	0.7766	0.7494	0.7548	0.6604	0.4919	
0.9325	0.9325	0.8354	0.7854	0.6813	0.2959	0.2286	0.2838	0.2953	211
0.9489	0.8414	0.8403	0.8099	0.7766	0.7494	0.7348	0.6604	0.4920	
0.9325	0.9325	0.8355	0.7855	0.6813	0.2959	0.2286	0.2838	0.2954	212
0.9489	0.8719	0.8404	0.8099	0.7765	0.7494	0.7548	0.6605	0.4921	
0.9325	0.9290	0.8356	0.7855	0.6813	0.2960	0.2286	0.2838	0.2954	213
0.9489	0.9092	0.8406	0.8098	0.7765	0.7494	0.7548	0.6606	0.4921	
0.9325	0.9157	0.8357	0.7855	0.6814	0.2960	0.2287	0.2839	0.2954	214
0.9489	0.9375	0.8407	0.8097	0.7764	0.7493	0.7548	0.6606	0.4922	
0.9325	0.9011	0.8358	0.7855	0.6814	0.2960	0.2287	0.2839	0.2954	215
0.9489	0.9489	0.8407	0.8096	0.7764	0.7495	0.7348	0.6607	0.4923	
0.9325	0.8900	0.8359	0.7855	0.6814	0.2960	0.2287	0.2839	0.2955	216
0.9489	0.9489	0.8406	0.8095	0.7763	0.7492	0.7348	0.6607	0.4923	
0.9325	0.8993	0.8359	0.7555	0.6814	0.2961	0.2288	0.2840	0.2955	217
0.9489	0.9489	0.8404	0.8094	0.7762	0.7492	0.7348	0.6607	0.4923	
0.9325	0.9156	0.8359	0.7855	0.6814	0.2961	0.2288	0.2840	0.2955	218
0.9489	0.9489	0.8401	0.8093	0.7761	0.7491	0.7347	0.6607	0.4923	
0.9325	0.9324	0.8358	0.7855	0.6814	0.2961	0.2288	0.2840	0.2956	219
0.9489	0.9308	0.8599	0.8092	0.7761	0.7490	0.7347	0.6607	0.4923	
0.9325	0.9325	0.8357	0.7855	0.6814	0.2961	0.2288	0.2841	0.2956	220
0.9489	0.8847	0.8397	0.8092	0.7760	0.7490	0.7346	0.6607	0.4923	
0.9325	0.9325	0.8356	0.7855	0.6814	0.2961	0.2289	0.2841	0.2956	221
0.9489	0.8523	0.8596	0.8091	0.7759	0.7489	0.7546	0.6607	0.4922	
0.9325	0.9525	0.8356	0.7855	0.6814	0.2962	0.2289	0.2841	0.2956	222
0.9489	0.8449	0.8597	0.8091	0.7758	0.7488	0.7345	0.6606	0.4922	
0.9325	0.9325	0.8357	0.7855	0.6814	0.2962	0.2289	0.2842	0.2957	223
0.9489	0.8764	0.8398	0.8090	0.7757	0.7467	0.7344	0.6606	0.4921	

0.9325	0.9290	0.8358	0.7855	0.6814	0.2962	0.2289	0.2842	0.2957	224
0.9489	0.9138	0.8399	0.8089	0.7756	0.7486	0.7343	0.6605	0.4920	
0.9325	0.9153	0.8359	0.7855	0.6814	0.2962	0.2289	0.2842	0.2957	225
0.9489	0.9408	0.8400	0.8088	0.7756	0.7485	0.7343	0.6604	0.4919	
0.9325	0.9005	0.8360	0.7855	0.6814	0.2962	0.2789	0.2843	0.2957	226
0.9489	0.9489	0.8400	0.8087	0.7755	0.7485	0.7342	0.6603	0.4919	
0.9325	0.8896	0.8361	0.7855	0.6814	0.2962	0.2289	0.2843	0.2958	227
0.9489	0.9489	0.8400	0.8087	0.7754	0.7484	0.7341	0.6603	0.4918	
0.9325	0.9004	0.8362	0.7855	0.6814	0.2962	0.2289	0.2843	0.2958	228
0.9489	0.9489	0.8398	0.8086	0.7753	0.7483	0.7340	0.6602	0.4917	
0.9325	0.9168	0.8361	0.7855	0.6814	0.2962	0.2289	0.2843	0.2958	229
0.9489	0.9489	0.8396	0.8085	0.7753	0.7482	0.7339	0.6601	0.4918	
0.9325	0.9325	0.8360	0.7856	0.6814	0.2962	0.2289	0.2843	0.2958	230
0.9489	0.9278	0.8394	0.8085	0.7752	0.7481	0.7336	0.6600	0.4915	
0.9325	0.9325	0.8359	0.7856	0.6814	0.2962	0.2289	0.2844	0.2958	231
0.9489	0.6826	0.8392	0.8085	0.7751	0.7480	0.7338	0.6599	0.4914	
0.9325	0.9325	0.8359	0.7856	0.6814	0.2962	0.2289	0.2844	0.2958	232
0.9489	0.8516	0.8392	0.8085	0.7751	0.7480	0.7337	0.6598	0.4913	
0.9325	0.9325	0.8358	0.7856	0.6814	0.2962	0.2289	0.2844	0.2959	233
0.9489	0.9452	0.8392	0.8085	0.7750	0.7479	0.7336	0.6597	0.4912	
0.9325	0.9325	0.8359	0.7857	0.6814	0.2962	0.2289	0.2844	0.2959	234
0.9489	0.8771	0.8394	0.8085	0.7750	0.7478	0.7335	0.6596	0.4911	
0.9325	0.9287	0.8359	0.7857	0.6814	0.2962	0.2289	0.2844	0.2959	235
0.9489	0.9148	0.8395	0.6085	0.7749	0.7478	0.7335	0.6595	0.4911	
0.9325	0.9148	0.8360	0.7857	0.6814	0.2962	0.2289	0.2844	0.2959	236
0.9489	0.9409	0.8357	0.8084	0.7749	0.7477	0.7334	0.6594	0.4910	
0.9325	0.9001	0.8361	0.7857	0.6814	0.2962	0.2289	0.2844	0.2959	237
0.9489	0.9489	0.8398	0.8084	0.7749	0.7477	0.7334	0.6593	0.4909	
0.9325	0.8893	0.8362	0.7857	0.6814	0.2962	0.2289	0.2844	0.2959	238
0.9489	0.9489	0.8397	0.8084	0.7749	0.7477	0.7333	0.6592	0.4909	
0.9325	0.9008	0.8362	0.7857	0.6814	0.2962	0.2289	0.2844	0.2959	239
0.9489	0.9489	0.8396	0.8083	0.7749	0.7477	0.7333	0.6592	0.4908	
0.9325	0.9173	0.8361	0.7857	0.6814	0.2962	0.2289	0.2844	0.2959	240
0.9489	0.9489	0.8394	0.9083	0.7749	0.7476	0.7333	0.6591	0.4908	
0.9325	0.9325	0.8360	0.7857	0.6815	0.2962	0.2289	0.2844	0.2959	241
0.9489	0.9268	0.8352	0.8083	0.7748	0.7476	0.7332	0.6591	0.4907	
0.9325	0.9325	0.8359	0.7857	0.6815	0.2962	0.2289	0.2844	0.2959	242
0.9489	0.8814	0.8391	0.6084	0.7749	0.7476	0.7332	0.6590	0.4907	
0.9325	0.9325	0.8358	0.7857	0.6815	0.2962	0.2289	0.2844	0.2959	243
0.9469	0.8505	0.8391	0.8084	0.7749	0.7476	0.7332	0.6590	0.4907	
0.9325	0.9325	0.8357	0.7857	0.6815	0.2962	0.2289	0.2844	0.2959	244
0.9489	0.8442	0.8392	0.8084	0.7749	0.7476	0.7332	0.6590	0.4906	
0.9325	0.9325	0.8357	0.7857	0.6815	0.2962	0.2289	0.2844	0.2959	245
0.9489	0.8761	0.8393	0.8085	0.7749	0.7476	0.7332	0.6590	0.4906	
0.9325	0.9285	0.8358	0.7857	0.6815	0.2962	0.2289	0.2844	0.2959	246
0.9489	0.9142	0.8395	0.8085	0.7749	0.7477	0.7333	0.6590	0.4906	
0.9325	0.9145	0.8359	0.7857	0.6815	0.2962	0.2289	0.2844	0.2959	247
0.9489	0.9409	0.8397	0.8085	0.7749	0.7477	0.7333	0.6590	0.4906	
0.9325	0.8997	0.8359	0.7857	0.6815	0.2962	0.2289	0.2844	0.2959	248
0.9489	0.9489	0.8358	0.8085	0.7749	0.7477	0.7333	0.6590	0.4906	
0.9325	0.8691	0.8360	0.7856	0.6815	0.2962	0.2289	0.2845	0.2959	249
0.9489	0.9489	0.8398	0.8085	0.7750	0.7477	0.7333	0.6590	0.4906	
0.9325	0.9010	0.8360	0.7856	0.6815	0.2962	0.2289	0.2845	0.2959	250
0.9489	0.9489	0.8397	0.8085	0.7750	0.7478	0.7334	0.6591	0.4906	
0.9325	0.9175	0.8359	0.7856	0.6815	0.2962	0.2289	0.2845	0.2960	251
0.9489	0.9489	0.8395	0.8085	0.7750	0.7478	0.7334	0.6591	0.4906	
0.9325	0.9325	0.8358	0.7855	0.6814	0.2962	0.2289	0.2845	0.2960	252
0.9489	0.9269	0.8394	0.8085	0.7751	0.7478	0.7334	0.6591	0.4906	
0.9325	0.9325	0.8356	0.7855	0.6814	0.2962	0.2289	0.2845	0.2960	253
0.9489	0.8808	0.8392	0.8085	0.7751	0.7479	0.7335	0.6592	0.4906	
0.9325	0.9325	0.8355	0.7855	0.6814	0.2962	0.2289	0.2845	0.2960	254
0.9489	0.8494	0.8392	0.8086	0.7751	0.7479	0.7335	0.6592	0.4906	
0.9325	0.9325	0.8354	0.7855	0.6814	0.2962	0.2289	0.2845	0.2960	255
0.9489	0.8430	0.8393	0.8086	0.7751	0.7490	0.7335	0.6592	0.4907	
0.9325	0.9325	0.8355	0.7855	0.6814	0.2962	0.2289	0.2845	0.2960	256
0.9489	0.8749	0.8395	0.8087	0.7752	0.7480	0.7334	0.6593	0.4907	

0.9325	0.9283	0.8355	0.7855	0.6814	0.2962	0.2289	0.2845	0.2960	257
0.9489	0.9133	0.8397	0.8087	0.7752	0.7480	0.7336	0.8593	0.4907	
0.9325	0.9143	0.8356	0.7854	0.6814	0.2962	0.2289	0.2845	0.2960	258
0.9489	0.9393	0.8399	0.8087	0.7752	0.7481	0.7337	0.6596	0.4907	
0.9325	0.8995	0.8357	0.7854	0.6814	0.2962	0.2289	0.2845	0.2960	259
0.9489	0.9489	0.8400	0.8087	0.7752	0.7481	0.7337	0.6594	0.4907	
0.9325	0.8889	0.8357	0.7554	0.6813	0.2962	0.2289	0.2845	0.2960	260
0.9489	0.9489	0.8400	0.8087	0.7753	0.7481	0.7337	0.6594	0.4907	
0.9325	0.9013	0.8357	0.7853	0.6813	0.2962	0.2289	0.2844	0.2960	261
0.9489	0.9489	0.8399	0.8087	0.7753	0.7481	0.7338	0.6595	0.4907	
0.9325	0.9179	0.8357	0.7853	0.6813	0.2961	0.2289	0.2844	0.2960	262
0.9489	0.9489	0.8358	0.8087	0.7753	0.7482	0.7338	0.6595	0.4907	
0.9325	0.9325	0.8356	0.7853	0.6813	0.2961	0.2289	0.2844	0.2959	263
0.9489	0.9271	0.8396	0.8087	0.7753	0.7482	0.7338	0.6595	0.4907	
0.9325	0.9325	0.8354	0.7853	0.6813	0.2961	0.2289	0.2844	0.2959	264
0.9489	0.8805	0.8395	0.8087	0.7753	0.7482	0.7338	0.6595	0.4907	
0.9325	0.9325	0.8354	0.7853	0.6813	0.2961	0.2289	0.2844	0.2959	265
0.9489	0.8487	0.8395	0.8088	0.7753	0.7482	0.7338	0.6595	0.4907	
0.9325	0.9325	0.8353	0.7853	0.6813	0.2961	0.2289	0.2844	0.2959	266
0.9489	0.8422	0.8394	0.8088	0.7753	0.7482	0.7338	0.6595	0.4907	
0.9325	0.9325	0.8354	0.7853	0.6812	0.2961	0.2288	0.2844	0.2959	267
0.9489	0.8742	0.8398	0.8089	0.7754	0.7482	0.7338	0.6595	0.4907	
0.9325	0.9280	0.8354	0.7853	0.6812	0.2961	0.2288	0.2844	0.2959	268
0.9489	0.9130	0.8400	0.8089	0.7754	0.7482	0.7338	0.6595	0.4907	
0.9325	0.9140	0.8355	0.7353	0.6812	0.2961	0.2288	0.2844	0.2959	269
0.9489	0.9393	0.8401	0.8089	0.7754	0.7482	0.7338	0.6595	0.4907	
0.9325	0.8991	0.8357	0.7853	0.6812	0.2960	0.2288	0.2844	0.2959	270
0.9489	0.9489	0.8402	0.5089	0.7754	0.7482	0.7338	0.8595	0.4906	
0.9325	0.8889	0.8357	0.7853	0.6812	0.2960	0.2288	0.2844	0.2959	271
0.9489	0.9489	0.8402	0.8069	0.7754	0.7482	0.7338	0.6595	0.4908	
0.9325	0.9019	0.8357	0.7452	0.6812	0.2960	0.2288	0.2843	0.2958	272
0.9489	0.9489	0.8401	0.8089	0.7754	0.7482	0.7338	0.8595	0.4906	
0.9325	0.9185	0.8357	0.7852	0.6812	0.2960	0.2288	0.2843	0.2958	273
0.9489	0.9489	0.8399	0.8089	0.7754	0.7482	0.7338	0.6595	0.4906	
0.9325	0.9325	0.8356	0.7852	0.6812	0.2960	0.2288	0.2843	0.2958	274
0.9489	0.9268	0.8358	0.8089	0.7754	0.7482	0.7338	0.6595	0.4906	
0.9325	0.9325	0.8355	0.7853	0.6812	0.2960	0.2287	0.2843	0.2958	275
0.9489	0.8799	0.8397	0.8089	0.7754	0.7482	0.7338	0.8595	0.4906	
0.9325	0.9325	0.8354	0.7553	0.6812	0.2960	0.2287	0.2843	0.2958	276
0.9489	0.8481	0.8357	0.8090	0.7754	0.7482	0.7338	0.6594	0.4906	
0.9325	0.9325	0.8354	0.7853	0.6812	0.2960	0.2287	0.2843	0.2958	277
0.9459	0.8418	0.8398	0.8090	0.7754	0.7482	0.7339	0.6594	0.4908	
0.9325	0.9324	0.8354	0.7853	0.6812	0.2960	0.2287	0.2843	0.2957	278
0.9489	0.8740	0.8399	0.5090	0.7754	0.7482	0.7338	0.6594	0.4908	
0.9325	0.9275	0.8355	0.7853	0.6812	0.2960	0.2287	0.2842	0.2957	279
0.9489	0.9131	0.8401	0.8090	0.7754	0.7482	0.7338	0.8594	0.4906	
0.9325	0.9136	0.8354	0.7853	0.6812	0.2960	0.2287	0.2842	0.2957	280
0.9489	0.9399	0.8403	0.8090	0.7754	0.7482	0.7338	0.6594	0.4908	
0.9325	0.6988	0.8357	0.7853	0.6812	0.2960	0.2287	0.2842	0.2957	281
0.9489	0.9489	0.8403	0.8090	0.7754	0.7482	0.7338	0.6594	0.4906	
0.9325	0.8690	0.8358	0.7853	0.6812	0.2960	0.2287	0.2842	0.2957	282
0.9489	0.9499	0.8403	0.8090	0.7754	0.7482	0.7338	0.6594	0.4907	
0.9325	0.9028	0.8358	0.7853	0.6812	0.2960	0.2287	0.2842	0.2957	283
0.9489	0.9489	0.8402	0.8090	0.7755	0.7482	0.7338	0.6594	0.4907	
0.9325	0.9194	0.8358	0.7353	0.6812	0.2960	0.2287	0.2842	0.2957	284
0.9489	0.9489	0.8400	0.8090	0.7755	0.7482	0.7338	0.6594	0.4907	
0.9325	0.9325	0.8357	0.7853	0.6812	0.2960	0.2287	0.2842	0.2957	285
0.9489	0.9261	0.8398	0.8090	0.7755	0.7482	0.7339	0.6594	0.4907	
0.9325	0.9325	0.8356	0.7854	0.6812	0.2960	0.2287	0.2842	0.2957	286
0.9489	0.8791	0.8357	0.8090	0.7755	0.7482	0.7338	0.6594	0.4908	
0.9325	0.9325	0.8355	0.7854	0.6812	0.2960	0.2287	0.2842	0.2957	287
0.9489	0.8476	0.8357	0.8091	0.7755	0.7483	0.7338	0.6594	0.4908	
0.9325	0.9325	0.8355	0.7554	0.6813	0.2980	0.2287	0.2842	0.2957	288
0.9489	0.8415	0.8398	0.8091	0.7755	0.7483	0.7338	0.6594	0.4908	
0.9325	0.9319	0.8355	0.7854	0.6813	0.2960	0.2287	0.2842	0.2957	289
0.9489	0.8744	0.8399	0.8091	0.7755	0.7483	0.7338	0.6594	0.4908	

0.9325	0.9268	0.8356	0.7854	0.6813	0.2960	0.2287	0.2842	0.2957	290
0.9489	0.9136	0.8401	0.8091	0.7755	0.7483	0.7338	0.6594	0.4909	
0.9325	0.9130	0.8357	0.7854	0.6813	0.2960	0.2287	0.2842	0.2957	291
0.9489	0.9407	0.8402	0.8091	0.7755	0.7483	0.7338	0.6595	0.4909	
0.9325	0.8984	0.8358	0.7554	0.6813	0.2960	0.2287	0.2842	0.2957	292
0.9489	0.9489	0.8403	0.8090	0.7755	0.7483	0.7338	0.6595	0.4909	
0.9325	0.8892	0.8358	0.7854	0.6813	0.2960	0.2287	0.2842	0.2957	293
0.9489	0.9489	0.8403	0.8090	0.7755	0.7483	0.7338	0.6595	0.4910	
0.9325	0.9040	0.8358	0.7854	0.6813	0.2960	0.2287	0.2842	0.2957	294
0.9489	0.9489	0.8401	0.8090	0.7755	0.7483	0.7339	0.6595	0.4910	
0.9325	0.9206	0.8358	0.7854	0.6813	0.2960	0.2288	0.2842	0.2957	295
0.9489	0.9489	0.8399	0.8090	0.7755	0.7483	0.7339	0.6596	0.4910	
0.9325	0.9325	0.8357	0.7854	0.6813	0.2960	0.2288	0.2842	0.2957	296
0.9489	0.9252	0.8397	0.8090	0.7755	0.7483	0.7339	0.6596	0.4910	
0.9325	0.9325	0.8356	0.7554	0.6813	0.2961	0.2288	0.2842	0.2957	297
0.9489	0.8780	0.8396	0.8090	0.7755	0.7484	0.7339	0.6596	0.4911	
0.9325	0.9325	0.8355	0.7854	0.6813	0.2961	0.2288	0.2842	0.2957	298
0.9489	0.8469	0.8396	0.8090	0.7755	0.7484	0.7339	0.6596	0.4911	
0.9325	0.9325	0.8354	0.7554	0.6813	0.2961	0.2288	0.2842	0.2957	299
0.9489	0.8415	0.8397	0.8090	0.7755	0.7484	0.7339	0.6597	0.4911	
0.9325	0.9312	0.8355	0.7854	0.6813	0.2961	0.2288	0.7842	0.2957	300
0.9489	0.8744	0.8399	0.8090	0.7755	0.7484	0.7339	0.6597	0.4911	

APPENDIX VI
COMPUTER LISTING

Unchoked Version

```
//      SET00236,01,RF212-42YAT,W.C.ROGER,MSGLEVEL=1,CLASS=C,TIME=4
//STEP1  EXEC   FTHSTORE,PARM.FTH='EBCDIC,NOEDIT,NOXREF',PGMNO=SET00236
C       --------  PROGRAM NO. SER00238  --------
C
C       UNCHOKED FLOW WITH FREE SUBSONIC EXPANSION.
C
C       COMPUTATION BASED ON LAX-WENDROFF METHOD.
C       TIME-DEPENDENT APPROACH TO STEADY STATE.
C
        COMMON /PGMNO/ NPROG(5)
C
        DATA K8/8/,K14/14/
C
        WRITE (6,1) NPROG
        WRITE (8,2) K8
        WRITE (14,2) K14
C
        CALL ERRSET (207,256,-1,1)
        CALL ERRSET (208,256,-1,1)
        CALL ERRSET (209,256,-1,1)
C
        CALL CARDIN
        CALL START
        CALL MAINP
        CALL ENDJOB
        CALL EXIT
        STOP
C
C
C
C
1       FORMAT ('1',20X,'PROGRAMME NO. ',5A4/'0',22X,'REAL GAS TIME-DEPEND
       1ENT UNCHOKED NOZZLE FLOW WITH FREE EXPANSION '/)
2       FORMAT  ('1',20X,'OUTPUT FROM DATA SET NO.',I3/'0' )
        END
        FUNCTION BANDIT (X1,X2,X3,X4,X5)
C
        COMMON /FUBAR/ F1,F2,F3,F4,F5
C
C       CENTRAL 4-POINT SMOOTHING
C
        BAN=F1*X1+F2*X2
        DIT=F3*X3+F5*X5
        BANDIT=BAN+DIT
        BANDIT=BANDIT+F4*X4
C
        RETURN
C
        END
        SUBROUTINE BEDLAM
C
C       COMPUTE THE MAXIMUM MASS FLOW/AREA AT THE THROAT STATION.
C       ITERION. ASSUMES STATIC PRESSURE TO SATISFY  DM/DP = 0
C       USE 3-POINT PARABOLIC FIT
C
C       INITIAL PRESSURE = 0.3*PZ-MIN
```

```
C
      COMMON /FLIGNR/ WEIGHT,PTHROT,PANIC
      COMMON /COUNT/ L,LL
      COMMON /EROS/ W(21,60,4),P(21,60)
      COMMON /NERO/ MF,NF,NT
      COMMON /STAG/ AA(8,21),CP(3,21),CV(3,21),WTM(21),GAMZ(21),RGAS(21)
     1,PZ(21),TZ(21),HZ(21),RHOZ(21)
C
      DIMENSION A(3), X(3), Y(3)
C
      ZERO=0.0
C
      CALL PMIN (PANIC)
C
      XLOW=0.3*PANIC
      DELX=0.005000001*PANIC
C
      JERK=0
C     COMPUTE FIRST THREE POINTS
      DO 1 K=1,3
      X(K)=XLOW+(K-1)*DELX
      CALL SETWP (X(K),NT)
      Y(K)=XMASS(NT)
    1 CONTINUE
C
      DO 2 K=1,69
      JERK=K
      CALL PARAB (X,Y,A)
      IF (A(3).EQ.ZERO) A(3)=1.0D+69
      XTEST=-0.5*A(2)/A(3)
      IF (A(3).GE.ZERO) GO TO 3
      IF ((X(1).LE.XTEST).AND.(X(3).GE.XTEST)) GO TO 4
C
      X(1)=X(2)
      Y(1)=Y(2)
      X(2)=X(3)
      Y(2)=Y(3)
      X(3)=X(3)+DELX
C
      CALL SETWP (X(3),NT)
      Y(3)=XMASS(NT)
    2 CONTINUE
C
    3 CONTINUE
C     NO SOLTION
      CALL BOMBER ('BEDLAM',JERK)
      RETURN
C
    4 CONTINUE
C     SOLUTION FOUND
      CALL SETWP (XTEST,NT)
      WEIGHT=XMASS(NT)
      PTHROT=XTEST
C     COMPUTE PRESSURES CORRESPONDING TO CHOKED FLOW.
      CALL PHINOU (1)
      CALL PHINOU (NF)
```

```
      PSIAI=P(1,1)/144.0
      PSIAL=P(1,NF)/144.0
      PPOI=P(1,1)/PZ(21)
      PPOL=P(1,NF)/PZ(21)
      POT=PTHROT/PZ(21)
      CALL HEAD6
      WRITE (6,5)
      WRITE (6,7) WEIGHT,PTHROT,PANIC
      WRITE (6,6) POT,PSIAI,PPOI,PSIAL,PPOL
C
      RETURN
C
C
5     FORMAT  (/20X,' CONDITIONS FOR CHOKED FLOW AT MINIMUM AREA ' / )
6     FORMAT  (/20X,' THROAT P/PO =',F7.4,3X,'INLET PRESSURE =',F8.3,'IP
     1SIA)',3X,'P/PO =',F9.4//20X,' EXIT PRESSURE =',F8.3,'(PSIA)',3X,'P
     2/PO =',F9.4 /  )
7     FORMAT  (/20X,'WEIGHT=',1PG15.6,3X,'PTHROT=',G15.6,3X,'PANIC=',G15
     1.6 / )
      END
      SUBROUTINE BNDRY
C
      COMMON /DELTAS/ DX,DY,DT,DY2,DT2,DT4
      COMMON /SUPER/ R(21,60)
      COMMON /SPOR/ S(60),SO(60),SOP(60),SI(60),SIP(60),AREA(60)
      COMMON /NERD/ MF,NF,NT,MUFF,LIMIT
      COMMON /EROS/ W(21,60,4),P(21,60)
      DATA ZERO/0.0/,ONE/1.0/
      COMMON /FRAN/ AO(60),AI(60),BO(60),BI(60)
      DIMENSION PP(100)
C
C     COMPUTE OUTER BOUNDARY PRESSURES
      DO 1 K=1,60
1     PP(K)=P(MF,K)
C
      DO 2 K=2,LIMIT
      X=W(MF,K,2)**2/W(MF,K,1)
      X=X/SO(K)
      DP=0.5*(PP(K+1)-PP(K-1))
      CORR=BO(K)*DP-AO(K)*X
      P(MF,K)=P(MF-1,K)+CORR
2     CONTINUE
      DO 3 K=2,LIMIT
      SOPK=SOP(K)
      DINGLE=ONE+SOPK**2
      DANGLE=SQRTF(ONE/DINGLE)
      CALL GRONK (ONE,P(MF,K),RHO,VEL,EASY)
      W(MF,K,1)=RHO*R(MF,K)
      W(MF,K,2)=RHO*R(MF,K)*VEL*DANGLE
      W(MF,K,3)=W(MF,K,2)*SOPK
3     W(MF,K,4)=EASY*R(MF,K)
      DO 4 K=1,60
4     PP(K)=P(1,K)
      DO 5 K=2,LIMIT
      X=W(1,K,2)**2/W(1,K,1)
      X=X/SI(K)
```

```
      DP=0.5*(PP(K+1)-PP(K-1))
      CORR=BI(K)*DP-AI(K)*X
    5 P(1,K)=P(2,K)+CORR
C
      DO 6 K=2,LIMIT
      SIPK=SIP(K)
      DINGLE=ONE+SIPK**2
      DANGLE=SQRTF(ONE/DINGLE)
      CALL GRONK (ZERO,P(1,K),RHO,VEL,EASY)
      W(1,K,1)=RHO*R(1,K)
      W(1,K,2)=RHO*R(1,K)*VEL*DANGLE
      W(1,K,3)=W(1,K,2)*SIPK
    6 W(1,K,4)=EASY*R(1,K)
C
      RETURN
      END
      SUBROUTINE BOMBER (NAME,KODE)
C
      DIMENSION NAME(2)
C
      WRITE (6,1) NAME(1),NAME(2),KODE
      CALL ENDJOB
      CALL EXIT
      RETURN
C
C
    1 FORMAT (/20X,'BOMB-OUT IN ',2A4,3X,'CODE=',I5/)
      END
      SUBROUTINE CARDIN
      COMMON /SPY/ KCLASS,KGROUP
      DIMENSION KARD(20)
      CALL DEMON
      READ (5,3) KCLASS,KGROUP
      WRITE (6,8) KCLASS,KGROUP
      CALL PCLASS
      DO 2 K=1,6969
      READ (5,4,END=9)  KARD
      IF (MOD(K-1,50).NE.0) GO TO 1
      CALL PCL6
      WRITE (6,7)
    1 WRITE (6,5) KARD,K
    2 CONTINUE
    9 REWIND 5
      WRITE (6,6)
      RETURN
C
    3 FORMAT  (16I5)
    4 FORMAT  (20A4)
    5 FORMAT  (10X,20A4,3X,I5)
    6 FORMAT  (2X,50('*'),' END OF INPUT DATA ',50('*') )
    7 FORMAT  (18X,'   INPUT DATA CARD IMAGE    PROGRAM NO. SER00142' / )
    8 FORMAT (/20X,'SECURITY CLASS AND GROUP  CLASS=',I5,'  GROUP=',I5/)
      END
      SUBROUTINE CDVD (CLAP,VENUS,PUNTZ,NASTY)
C
C     AT A GIVEN X-STATION.
```

```
C     COMPUTE DISCHARGE COEFFICIENT-CD  AND THRUST COEFFICIENT-VD.
C
      COMMON /EROS/ W(21,60,4),P(21,60)
      COMMON /DELTAS/ DX,DY,DT
      COMMON /NERO/ M,N,NT,MUFF
      COMMON /SPOR/ S(60)
      COMMON /SUPER/ R(21,60)
C
      NX=NASTY
C
      CD=(W(M,NX,2)+W(1,NX,2))*0.5
      VD=(W(M,NX,2)**2/W(M,NX,1)+W(1,NX,2)**2/W(1,NX,1))*0.5
      PUNE=(P(M,NX)*R(M,NX)+P(1,NX)*R(1,NX))*0.5
C
      DO 1 K=2,MUFF
      CD=CD+W(K,NX,2)
      VD=VD+W(K,NX,2)**2/W(K,NX,1)
    1 PUNE=PUNE+P(K,NX)*R(K,NX)
C
      SEX=S(NX)*DY*2.0
      CLAP=SEX*CD
      VENUS=SEX*VD
      PUNTZ=PUNE*SEX
C
      RETURN
C
      END
      SUBROUTINE CHECK
C
C     COMPUTE THE MASS FLOW EITHER AT THE ENTRANCE OR EXIT.
C     PANZY > 0   ENTRANCE PSIA GIVEN
C     PANZY < 0   EXIT PSIA GIVEN
C
      READ (5,4) PANZY,PZ,GAMMA
      WRITE (6,2) PANZY,PZ,GAMMA
      IF (PZ.EQ.0.0) GO TO 1
      PANZY=SIGN(PZ*PRAT(PANZY,GAMMA),PANZY)
    1 PSIA=PANZY
      PANZY=PSIA*144.0
      WRITE (6,3) PSIA,PANZY
C
      CALL FIRST (PANZY)
      CALL DOWN (-PANZY)
C
      RETURN
C
C
    2 FORMAT  (/20X,'PANZY=',F10.4,3X,'PZ=',F10.3,2X,'GAMMA=',F7.3/)
    3 FORMAT  (/20X,'P(IN/OUT) =',F10.4,'(PSIA)',3X,F10.2,'(PSFA)' / )
    4 FORMAT  (6E12.0)
      END
      SUBROUTINE CIPORT (PO,TO,OEN,FUZZ,PSTAT,TEMP,VEL,EASY)
C                                 INPUT             COMPUTED
C
C     COMPUTE STATIC PROPERTIES FOR A GIVEN  STATIC DENSITY.
C
```

```
C     PO = STAGNATION PRESSURE
C     TO = STAGNATION TEMPERATURE
C     DEN = STATIC DENSITY
C     FUZZ = STREAMLINE
C
C     ----------------------
      COMMON /LIMITS/ VMIN
      COMMON /THERMO/ CPX(3),CVX(3),RAG
C
    1 CONTINUE
      ZERO=0.0
C
      PZ=PO
      TZ=TO
      RHO=DEN
      F=FUZZ
C
      RRATIO=RHO*RAG*TZ/PZ
C     --------------------------
C     T = HANKY(CVX,RRATIO,TZ,RAG)    **********************
      AZ=CVX(1)
      A1=CVX(2)
      A2=CVX(3)
      X=RRATIO
      RGAS=RAG
      POWER=RGAS/AZ
      FUDGE=X**POWER
      BARF=A1/AZ
      TRAF=A2*0.5/AZ
C
C     LET FIRST GUESS FOR T = TZ
      T=TZ
      DO 2 K=1,5
      TTZ=T/TZ
      EPAR=(TZ-T)*(BARF+(TZ+T)*TRAF)
      XLAX=EXP(EPAR)
      TRAT=XLAX*FUDGE
C     COMPARE "TRAT" WITH "TTZ"
      TCOMP=TRAT*TZ
      ERROR=TCOMP-T
      T=TCOMP
    2 CONTINUE
C     --------------------------
      PRES=T*RHO*RAG
C
      DH=HOTS(CPX,T,TZ)
      VELOC=SQRTF(DH+DH)
      VELOC=AMAX1(VELOC,VMIN)
      HO=HZERO(F)
      E=HO*RHO-PRES
C
      PSTAT=PRES
      VEL=VELOC
      EASY=E
      TEMP=T
C
```

```
      RETURN
C
      END
      SUBROUTINE CPEVAL
C
      COMMON /CPDATA/ CP(3,8),WTM(8),NAME(8)
C
      DATA KRUD/'PERF'/
      DIMENSION X(8), Y(8)
C     CP ARRAY
C     1 - AIR        5 - O2
C     2 - CO2        6 - N2
C     3 - CO         7 - ARGON
C     4 - H2O        8 - H2
C
      INTEGER*4  LBMASS(4)/'CP(B','TU/L','BMAS','S-R)'/
     *          , LBMOLE(4)/'CP(B','TU/L','BMOL','E-R)'/
     *          , KGAMMA(4)/'CP/C','V GA','MMA ','    '/
C
C     ---------------------
      READ (5,10) NOMEN,ADDA
C
      IF (NOMEN.NE.KRUD) GO TO 3
      DO 2 J=1,8
      DO 1 K=2,3
    1 CP(K,J)=-0.0
C
    2 CONTINUE
      CP(1,1)=0.24009
C
    3 CONTINUE
      NCP=19
      R=1.98726
C
      CALL HEAD6
C
      WRITE (6,11)
C
      WRITE (6,12) (K,NAME(K),WTM(K),(CP(J,K),J=1,3),K=1,8)
C
      WRITE (6,14) NAME,LBMASS
C
      DO 5 J=1,NCP
      A=J-1
      A=A+ADDA
      T=A*100.0
      DO 4 K=1,8
      X(K)=CP(1,K)+T*(CP(2,K)+CP(3,K)*T)
    4 CONTINUE
C
      WRITE (6,13) T,X,T
      IF (MOD(J,5).EQ.0) WRITE (6,16)
    5 CONTINUE
C
      WRITE (6,15)
      WRITE (6,14) NAME,LBMOLE
```

```
C
      DO 7 J=1,NCP
      A=J-1
      A=A+ADDA
      T=A*100.0
      DO 6 K=1,8
      X(K)=CP(1,K)+T*(CP(2,K)+CP(3,K)*T)
      X(K)=X(K)*WTM(K)
    6 CONTINUE
C
      WRITE (6,13) T,X,T
      IF (MOD(J,5).EQ.0) WRITE (6,16)
    7 CONTINUE
C
C
      WRITE (6,14) NAME,KGAMMA
C
      DO 9 J=1,NCP
      A=J-1
      A=A+ADDA
      T=A*100.0
C
      DO 8 K=1,8
      X(K)=CP(1,K)+T*(CP(2,K)+CP(3,K)*T)
      X(K)=X(K)*WTM(K)
      FUZZ=X(K)-R
      Y(K)=X(K)/FUZZ
    8 CONTINUE
C
      WRITE (6,13) T,Y,T
      IF (MOD(J,5).EQ.0) WRITE (6,16)
C
    9 CONTINUE
C
      RETURN
C
C
C
   10 FORMAT (A4,E16.0)
   11 FORMAT (' ',20X,'CP DATA' //20X,'COEFFICIENTS FOR CP(BTU/LB.MASS)
     1= F(T-RANKINE)' //23X,'MOL. WT.',5X,'A0',10X,'A1*T',13X,'A2*T**2')
   12 FORMAT (/10X,I5,2X,A4,0PF10.3,1P3G15.6)
   13 FORMAT (10X,F8.1,5X,8F9.4,2X,F8.1)
   14 FORMAT (/12X,'RANKINE',8X,8(A4,5X),2X,4A4/ )
   15 FORMAT ('1')
   16 FORMAT (' ')
      END
      FUNCTION CSUBP (TEMP)
      COMMON /THERMO/ CP(3),CV(3)
      T=TEMP
      C=CP(1)+T*(CP(2)+CP(3)*T)
      CSUBP=C
      RETURN
C     ----------
C
      ENTRY CSUBV(TEMP)
```

```
C       COMPUTE CV AS A FUNCTION OF TEMPERATURE.
C
        T=TEMP
        C=CV(1)+T*(CV(2)+CV(3)*T)
        CSUBV=C
        RETURN
        END
        SUBROUTINE CYCLE
C
        COMMON /DELTAS/ DX,DY,DT,DY2,DT2,DT4
        COMMON /DUPER/ HA(21),HB(21)
        COMMON /EROS/ W(21,60,4),P(21,60)
        COMMON /FANG/ F(9,4),G(9,4)
        COMMON /FURD/ WNORTH(4),WSOUTH(4),WWEST(4),WEAST(4)
        COMMON /NAVIER/ DTDX,DTDX2,DTDX4,DTDX8,DTDY,DTDY2,DTDY4,DTDY8
        COMMON /NERD/ MF,NF,NT,MUFF,LIMIT
        COMMON /STOKES/ A(60),B(60),H(60)
        COMMON /STUPID/ FUZZ(21,60)
C
C       9-POINT GRID COMPUTATION SCHEME          4-POINT AT DT/2
C
C          7           8           9
C
C                    NORTH                             2
C
C          4   WEST    5   EAST    6                3    X    4
C
C                    SOUTH                             1
C
C          1           2           3
C
C
        DO 4 M=2,MUFF
        Y=HB(M)
C
        DO 3 N=2,LIMIT
        HN=H(N)
        EAST=A(N+1)*Y+B(N+1)
        WEST=A(N-1)*Y+B(N-1)
        ANYB=A(N)*Y+B(N)
        FUDGE=A(N)*DY2
        YANKEE=ANYB+FUDGE
        REBEL=ANYB-FUDGE
C
        CALL SNAFU (M,N)
C
        DO 1 K=1,4
C
        F64=F(6,K)-F(4,K)
        G82=(G(8,K)-G(2,K))*HN
        F82=(F(8,K)-F(2,K))*ANYB
C
C       COMPUTE NORTH POINT
        WBAR=(W(M,N,K)+W(M+1,N,K))*0.5
        FX=(F64+F(9,K)-F(7,K))*DTDX8
        FY=(F(8,K)-F(5,K))*YANKEE
```

```
      GY=(G(8,K)-G(5,K))*HN
      WNORTH(K)=WBAR+FX+GY-FY
C
C     COMPUTE SOUTH POINT
      WBAR=(W(M,N,K)+W(M-1,N,K))*0.5
      FX=(F64+F(3,K)-F(1,K))*DTDX8
      FY=(F(5,K)-F(2,K))*REBEL
      GY=(G(5,K)-G(2,K))*HN
      WSOUTH(K)=WBAR+FX+GY-FY
C
C     COMPUTE EAST POINT
      WBAR=(W(M,N+1,K)+W(M,N,K))*0.5
      FX=(F(6,K)-F(5,K))*DTDX2
      FY=(F(9,K)-F(3,K))*EAST
      GY=(G(9,K)-G(3,K))*H(N+1)
      WEAST(K)=WBAR+FX+(GY+GB2-FY-FB2)*0.25
C
C     COMPUTE WEST POINT
      WBAR=(W(M,N-1,K)+W(M,N,K))*0.5
      FX=(F(5,K)-F(4,K))*DTDX2
      FY=(F(7,K)-F(1,K))*WEST
      GY=(G(7,K)-G(1,K))*H(N-1)
1     WWEST(K)=WBAR+FX+(GY+GB2-FY-FB2)*0.25
C
      WNORTH(3)=WNORTH(3)+DT4*(P(M,N)+P(M+1,N))
      WSOUTH(3)=WSOUTH(3)+DT4*(P(M,N)+P(M-1,N))
      WEAST(3)=WEAST(3)+DT4*(P(M,N)+P(M,N+1))
      WWEST(3)=WWEST(3)+DT4*(P(M,N)+P(M,N-1))
C
      CALL EVAL (WNORTH,2,(FUZZ(M,N)+FUZZ(M+1,N))*0.5)
      CALL EVAL (WSOUTH,1,(FUZZ(M,N)+FUZZ(M-1,N))*0.5)
      CALL EVAL (WEAST,4,(FUZZ(M,N)+FUZZ(M,N+1))*0.5)
      CALL EVAL (WWEST,3,(FUZZ(M,N)+FUZZ(M,N-1))*0.5)
C
      DO 2 K=1,4
      FX=(F(4,K)-F(3,K))*DTDX
      FY=(F(2,K)-F(1,K))*ANYB
      GY=(G(2,K)-G(1,K))*HN
2     W(M-1,N-1,K)=W(M,N,K)+FX+2.0*(GY-FY)
      W(M-1,N-1,3)=W(M-1,N-1,3)+P(M,N)*DT
C
3     CONTINUE
4     CONTINUE
C
      CALL WEIRDO
      RETURN
      END
      SUBROUTINE DEMON
      IMPLICIT REAL*8(A-H,O-Z)
      COMMON /APE/ D(10),ARONUM,WEEKDY,KDATE(3)
      REAL*8  TWTFS(7)
     * /' TUESDAY',' WEDNSDY',' THURSDY',' FRIDAY '
     * ,' SATURDY',' SUNDAY ',' MONDAY ' /
      INTEGER  MONTH(13)/ ' JAN',' FEB',' MAR',' APR',' MAY',' JUN'
     *, ' JUL',' AUG',' SEP',' OCT',' NOV',' DEC'/
      INTEGER JERK(12)/31,28,31,30,31,30,31,31,30,31,30,31/
```

```
      INTEGER  LUSH/'1900'/ , LULU/' 00,'/
      CALL GETWHD (ARONUM,KYEAR)
      KDAY=MOD(KYEAR,1000)
      KYEAR=KYEAR/1000
      IF(MOD(KYEAR,4) .EQ. 0)  JERK(2)=29
      L = KYEAR - 69
      J = L/4 + L + KDAY
      L = MOD(J,7) + 1
      WEEKDY=TWTFS(L)
      K=KDAY
      DO 1 J=1,12
      M=J
      IF (K.LE.JERK(J)) GO TO 2
    1 K=K-JERK(J)
      K=0
      M=13
    2 MUNTH=MONTH(M)
      KDATE(1)=MUNTH
      KDATE(2)=LULU+256*((K/10)*256+MOD(K,10))
      KDATE(3) = LUSH + 256*(KYEAR/10) + MOD(KYEAR,10)
      RETURN
      END
      SUBROUTINE DOODLE
      COMMON /EROS/ W(21,60,4),P(21,60)
      COMMON /FLIGNR/ WEIGHT
      COMMON /NERD/ MF,NF,NT,MUFF,LIMIT
      COMMON /STUPID/ F(21,60)
      COMMON /SUPER/ R(21,60)
      DATA ZERO/0.0/,ONE/1.0/,BIGGY/0.01/,SMALL/-0.01/,HUGE/1.69E+12/
      DO 2 J=2,LIMIT
      REL=(WEIGHT-XMASS(J))/WEIGHT
      DO 1 K=1,MF
      FACTER=RIDDLE(K,J)
      IF (FACTER.EQ.ZERO) FACTER=HUGE
      EPAR=REL/FACTER
      IF (EPAR.GT.BIGGY) EPAR=BIGGY
      IF (SMALL.GT.EPAR) EPAR=SMALL
    1 W(K,J,1)=W(K,J,1)*(ONE+EPAR)
    2 CONTINUE
      CALL ROGUE
      DO 4 K=1,MF
      DO 3 J=2,LIMIT
      FUZZ=F(K,J)
      RHO=W(K,J,1)
      RMAX=0.995*RHOMAX(FUZZ)
      RHO=DUMDUM(RHO,RMAX)
      CALL FONKY (FUZZ,RHO,PSTAT,VEL,EASY,TANG)
      TANG=W(K,J,3)/W(K,J,2)
      COSN=ONE/SQRTF(ONE+TANG**2)
      W(K,J,1)=RHO*R(K,J)
      W(K,J,2)=W(K,J,1)*VEL*COSN
      W(K,J,3)=W(K,J,2)*TANG
      W(K,J,4)=EASY*R(K,J)
    3 P(K,J)=PSTAT
    4 CONTINUE
      RETURN
```

```
      END
      SUBROUTINE ENDJOB
C
      CALL HEAD6
      CALL HEAD8
      CALL HEAD14
C
      WRITE (6,1)
      WRITE (8,2)
      WRITE (14,3)
C
      WRITE (14,4)
      WRITE (14,4)
C
      CALL EXIT
      RETURN
C
C
1     FORMAT  ('2',40('*'),' END OF DATA SET 6 ',40('*') )
2     FORMAT  ('2',40('*'),' END OF DATA SET 8 ',40('*') )
3     FORMAT  ('2',40('*'),' END OF DATA SET 14 ',40('*') )
4     FORMAT
     1(30X' *****    *    *  ***        ***** *****           *  *****  ****   '/
     2 30X' *        **   *  *  *       *    *  *             *  *    *  *    * '/
     3 30X' ***      * *  *  *  *       *    *  ***           *  *    *  ****   '/
     4 30X' *        *  ** *  *  *       *    *  *         *   *  *    *  *    * '/
     5 30X' *****    *    *  ***        *****  *           ***   *****  ****   ')
      END
      SUBROUTINE ENIGMA
      COMMON /EROS/ W(21,60,4),P(21,60)
      COMMON /COUNT/ L,LL
      COMMON /NERD/ WF,NF,NT
      COMMON /NITWIT/ CLOWN,VULGAR
      CALL HEAD6
      WRITE (6,6) L
      WRITE (6,3)
      WRITE (6,5)
      CALL CDVD (CDT,VDT,PUNTZ,NT)
      IF (L.NE.0) GO TO 1
      CLOWN=CDT
      VULGAR=VDT
1     DO 2 K=1,NF
      CALL CDVD (A,B,PUNTZ,K)
      AX=A/CDT
      AXX=A/CLOWN
      BX=B/VDT
      BXX=B/VULGAR
      SUM=PUNTZ+B
      THRUST=SUM*3.141593
      WF=A*3.141593*32.174
      WRITE (6,4) WF,AX,AXX,B,BX,BXX,PUNTZ,THRUST,K
      IF (K.EQ.NT) WRITE (6,7)
2     CONTINUE
      RETURN
C
3     FORMAT  (/20X,'DISCHARGE(CD),THRUST(VD),AND PRESSURE(PD) COEFFICIE
```

```
     INTS' / )
4     FORMAT  (10X,1PG14.5,0PF10.5,4X,F10.5,4X,1P5G14.5,1X,I2)
5     FORMAT  (/16X,'WF',11X,'WF/WF*',6X,'WF/WF1',9X,'VO',11X,'VD/VD*',7
     1X,'VO/VD-1',9X,'PD',11X'THRUST(LBF)'/)
6     FORMAT (/20X,'ITERATION NO.=',I5/)
7     FORMAT  ('+',5X,'THROAT')
      END
      SUBROUTINE EQUATE (K,J,NERD)
      DIMENSION K(1), J(1)
      N=NERD
      DO 1 L=1,N
1     K(L)=J(L)
      RETURN
      END
      SUBROUTINE EVAL (A,ISW,ATE)
C
      COMMON /FANG/ F(9,4),G(9,4)
C
      DIMENSION A(4)
C
      ZERO=0.0
      ETA=ATE
C
      IF (A(1).NE.ZERO) GO TO 1
      Z2=ZERO
      Z3=ZERO
      PR=ZERO
      GO TO 2
C
1     CONTINUE
      Z2=A(2)/A(1)
      Z3=A(3)/A(1)
      HO=HZERO(ETA)
      PR=HO*A(1)-A(4)
2     CONTINUE
      F(ISW,1)=-A(2)
      F(ISW,2)=-(Z2*A(2)+PR)
      F(ISW,3)=-Z2*A(3)
      F(ISW,4)=-(Z2*(A(4)+PR))
      G(ISW,1)=-A(3)
      G(ISW,2)=F(ISW,3)
      G(ISW,3)=-(Z3*A(3)+PR)
      G(ISW,4)=-(Z3*(A(4)+PR))
      RETURN
      END
      SUBROUTINE FIASCO
C
      COMMON /EROS/ W(21,60,4),P(21,60)
      COMMON /NERD/ MF,NF,NT,MUFF,LIMIT,NASTY
      COMMON /SPOR/ S(60),SO(60),SOP(60),SI(60),SIP(60),AREA(60)
      COMMON /$EXX/ NASTIE,IDIOT
      DIMENSION X(21)
C
      DATA ONE/1.D/
C
      IF (NASTIE.LE.O) RETURN
```

```
      DO 3 J=2,NASTIE
C
      X(1)=SIP(J)
      X(MF)=SOP(J)
      DO 1 K=2,MUFF
1     X(K)=W(K,J,3)/W(K,J,2)
C
      CALL SMOOTH (X,MF,3)
C
      DO 2 K=2,MUFF
      TN=X(K)
      RWR=SQRTF(W(K,J,2)**2+W(K,J,3)**2)
      CN=SQRTF(ONE/(TN**2+ONE))
      SN=CN*TN
      W(K,J,3)=SN*RWR
      W(K,J,2)=CN*RWR
2     CONTINUE
C
3     CONTINUE
C
      RETURN
C
      END
      SUBROUTINE FIRST (PP)
C
      COMMON /ABLE/ AX(21,2),BX(21,2)
      COMMON /FLIGNR/ WEIGHT,PTHROT,PANIC
      COMMON /NERD/ MF,NF,NT,MUFF,LIMIT,NASTY
C     "JX" IS X-STATION INDEX.
      P=PP
      IF (P) 1,2,4
1     RETURN
2     CALL BOMBER ('-FIRST--',98)
3     CALL BOMBER ('-FIRST--',97)
4     JX=1
C
C     IF JX= 1 , LUSH= 1
C     IF JX= NF, LUSH= 2
5     LUSH=(NF-2+JX)/(NF-1)
      DO 6 K=1,MF
      X=P*AX(K,LUSH)
      SLOPE=BX(K,LUSH)
6     CALL HUNTZ (K,JX,X,SLOPE)
C
      BLIVET=XMASS(JX)
      WRITE (6,13) BLIVET,JX
C
      IF (BLIVET-WEIGHT) 7,7,3
C
7     JX=NF+1-JX
      LUSH=3-LUSH
      WEIGHT=BLIVET
      XLOW=PTHROT
      XHIG=PANIC
C
      DO 11 KOUNT=1,20
```

```
      X=(XLOW+XHIG)*0.5
C
      DO 8 K=1,MF
      PIDDLE=X*AX(K,LUSH)
      SLOPE=BX(K,LUSH)
8     CALL HUNTZ (K,JX,PIDDLE,SLOPE)
C
      SEX=XMASS(JX)
      ERROR=SEX-BLIVET
      IF (ERROR) 9,9,10
C
9     XHIG=X
      GO TO 11
10    XLOW=X
11    CONTINUE
C
C     TEST FOR MASS
      RELERR=ERROR/BLIVET
      WRITE (6,14) JX,SEX,ERROR,RELERR
C
      RETURN
C     ----------------------
      ENTRY DOWN(PP)
      P=PP
      IF (P) 1,2,12
12    JX=NF
      GO TO 5
C
C
13    FORMAT  (/20X, 7H MASS =,E15.6,2X,15HAT STATION NO.=,I3 / )
14    FORMAT  (/20X,15H AT X-STATION =,I3,2X, 6H MASS=,E15.6//20X,' ABSO
     1LUTE ERROR=',E15.6,3X,17H RELATIVE ERROR =,2PF8.4,2H %/)
      END
      SUBROUTINE FONKY (FUZZ,RHO,PSTAT,VEL,EASY,TEMP)
C                          INPUT              COMPUTED
C
C     COMPUTE PROPERTIES AS A FUNCTION OF:
C     F = STREAMLINE VALUE
C     RHO = STATIC DENSITY
C     ----------------------
      COMMON /STAG/ A(8,21),CP(3,21),CV(3,21),WTM(21),GAMZ(21),RGAS(21),
     1PZ(21),TZ(21),HZ(21)
      COMMON /THERMO/ CPX(3),CVX(3),RAG
C
1     CONTINUE
      ONE=1.0
      ZERO=0.0
C
      F=FUZZ
      D=RHO
C
      IF (F.EQ.ZERO) GO TO 3
      IF (F.EQ.ONE) GO TO 5
      IF (F*(ONE-F).LE.ZERO) CALL BOMBER ('FONKY',1)
C
      X=F*20.0
```

```
      NEWKY=X
      DIGIT=NEWKY
      F2=X-DIGIT
      F1=ONE-F2
      J=NEWKY+1
      K=J+1
C
      PO=F1*PZ(J)+F2*PZ(K)
      TO=F1*TZ(J)+F2*TZ(K)
C
      DO 2 L=1,3
      CPX(L)=F1*CP(L,J)+F2*CP(L,K)
      CVX(L)=F1*CV(L,J)+F2*CV(L,K)
2     CONTINUE
C
      RAG=F1*RGAS(J)+F2*RGAS(K)
      GO TO 7
C
3     CONTINUE
      PO=PZ(1)
      TO=TZ(1)
      DO 4 L=1,3
      CPX(L)=CP(L,1)
      CVX(L)=CV(L,1)
4     CONTINUE
C
      RAG=RGAS(1)
      GO TO 7
C
5     CONTINUE
      PO=PZ(21)
      TO=TZ(21)
      DO 6 L=1,3
      CPX(L)=CP(L,21)
      CVX(L)=CV(L,21)
6     CONTINUE
      RAG=RGAS(21)
      GO TO 7
C
7     CONTINUE
C
      CALL CIPORT (PO,TO,D,F,PRES,TRANK,VELOC,E)
C
      PSTAT=PRES
      TEMP=TRANK
      EASY=E
      VEL=VELOC
C
      RETURN
C
      END
      SUBROUTINE FREAK (PRES,RHO,UU,VV,MY,NX,PO,TO,DEG,T,XM,VEL,GAM)
C                                 INPUT                    COMPUTED
C
      COMMON /COUNT/ L,LL
      COMMON /NERD/ MF,NF,NT
```

```
      COMMON /STUPID/ FZ(21,60)
      COMMON /THERMO/ CPX(3),CVX(3),RAG
      COMMON /STAG/ A(8,21),CP(3,21),CV(3,21),WTM(21),GAMZ(21),RGAS(21)
C
C     ----------------
C
      ZERO=0.0
C
      P=PRES
      R=RHO
      U=UU
      V=VV
      M=MY
      N=NX
C
      FUZZ=FZ(M,N)
      Q=V**2+U**2
C
C     COMPUTE STREAMLINE PARAMETERS
      DO 1 K=2,MF
      J=K
      F2=FUZZ-FZ(K-1,1)
      F1=FZ(K,1)-FUZZ
      IF (F1*F2.GE.ZERO) GO TO 2
    1 CONTINUE
C
C     FAIL TO FIND STREAMLINE
      CALL BOMBER ('FREAK...',1)
C
    2 CONTINUE
      SUM=F1+F2
      F1=F1/SUM
      F2=F2/SUM
      RAG=F1*RGAS(J-1)+F2*RGAS(J)
C
      DO 3 K=1,3
      CPX(K)=F1*CP(K,J-1)+F2*CP(K,J)
      CVX(K)=F1*CV(K,J-1)+F2*CV(K,J)
    3 CONTINUE
C
      TEMP=P/(R*RAG)
      TZ=TSTAG(CPX,TEMP,Q)
      PZ=PSTAG(CPX,TEMP,TZ,P,RAG)
C
      TANG=V/U
      RAD=ATANF(TANG)
      DEGREE=RAD*57.29578
      SEX=CSUBP(TEMP)
      HEX=CSUBV(TEMP)
      GAMMA=SEX/HEX
      SONIC=SQRTF(GAMMA*RAG*TEMP)
      VELOC=SQRTF(Q)
      XMACH=VELOC/SONIC
C
C
      PO=PZ
```

```
      TO=TZ
      DEG=DEGREE
      T=TEMP
      XM=XMACH
      VEL=VELOC
      GAM=GAMMA
C
      RETURN
C
      END
      SUBROUTINE GRONK (FUZZ,PP,RHO,VEL,EASY)
C
C     COMPUTE GAS PROPERTIES AS A FUNCTION OF:
C     F = STREAMLINE VALUE  AND PP = STATIC PRESSURE
C
C     INPUT
C     FUZZ = STREAMLINE INDEX
C     PP   = STATIC PRESSURE
C     CALCULATED
C     RHO  = STATIC DENSITY
C     VEL  = VELOCITY
C
      COMMON /STAG/ A(8,21),CP(3,21),CV(3,21),WTM(21),GAMZ(21),RGAS(21),
     1PZ(21),TZ(21)
C
      COMMON /THERMO/ CPX(3),CVX(3),RAG
C
C     --------------------
C
      F=FUZZ
      P=PP
C
      ONE=1.0
      ZERO=0.0
C
      IF (F.EQ.ZERO) GO TO 2
      IF (F.EQ.ONE) GO TO 4
      IF (F*(ONE-F).LE.ZERO) CALL BOMBER ('GRONK',1)
C
      X=F*20.0
      NEWKY=X
      DIGIT=NEWKY
      F2=X-DIGIT
      F1=ONE-F2
      J=NEWKY+1
      K=J+1
      PO=F1*PZ(J)+F2*PZ(K)
      TO=F1*TZ(J)+F2*TZ(K)
C
      DO 1 L=1,3
      CPX(L)=F1*CP(L,J)+F2*CP(L,K)
      CVX(L)=F1*CV(L,J)+F2*CV(L,K)
    1 CONTINUE
      RAG=F1*RGAS(J)+F2*RGAS(K)
      GO TO 6
    2 CONTINUE
```

```
      PO=PZ(1)
      TO=TZ(1)
      DO 3 L=1,3
      CPX(L)=CP(L,1)
      CVX(L)=CV(L,1)
    3 CONTINUE
      RAG=RGAS(1)
      GO TO 6
    4 CONTINUE
      PO=PZ(21)
      TO=TZ(21)
      DO 5 L=1,3
      CPX(L)=CP(L,21)
      CVX(L)=CV(L,21)
    5 CONTINUE
      RAG=RGAS(21)
      GO TO 6
C     **
    6 CONTINUE
      CALL TROPIC (PO,TO,P,F,DEN,VELOC,E)
C
      RHO=DEN
      VEL=VELOC
      EASY=E
      RETURN
C
      END
      FUNCTION HANKY (A,PANKY,TO,SAGR)
C
      DIMENSION A(1)
C
      AZ=A(1)
      A1=A(2)
      A2=A(3)
C
      X=PANKY
      TZ=TO
      RGAS=SAGR
C
C
      POWER=RGAS/AZ
      FUDGE=X**POWER
      BARF=A1/AZ
      TRAF=A2*0.5/AZ
C
C     LET FIRST GUESS FOR T = TZ
      T=TZ
      DO 1 K=1,5
      TTZ=T/TZ
      EPAR=(TZ-T)*(BARF+(TZ+T)*TRAF)
      XLAX=EXP(EPAR)
      TRAT=XLAX*FUDGE
C     COMPARE "TRAT" WITH "TTZ"
      TCOMP=TRAT*TZ
      ERROR=TCOMP-T
      T=TCOMP
```

```
    1 CONTINUE
      HANKY=T
C
      RETURN
      END
      SUBROUTINE HORNY
C
C     ANNULAR NOZZLE
C     COMPUTE THE STREAM FRACTION BASED ON 1-D GEOMETRY.
C
      COMMON /NERD/ M,N,NT,MUFF/STUPID/F(21,60)/SUPER/R(21,60)
      COMMON /SPOR/ S(60),SO(60),SOP(60),SI(60),SIP(60),AREA(60)
C
      CALL DREZ (F,1260)
C
      CALL HEAD6
      DO 2 J=1,N
      F(M,J)=1.0
      ROGER=1.0/AREA(J)
      DO 1 K=2,MUFF
    1 F(K,J)=(R(K,J)+R(1,J))*(R(K,J)-R(1,J))*ROGER
      WRITE (6,3) J,(F(K,J),K=1,M)
    2 CONTINUE
      RETURN
C
C
    3 FORMAT  (10X,I5,2X,11F10.4/17X,10F10.4/)
      END
      FUNCTION HOTS (CP,TSTAT,TZERO)
C
C     COMPUTE THE ENTHALPY DIFFERENCE:
C     H(TZERO) - H(TSTAT) = HOTS
C     WHERE CP = CP(1) + CP(2)*T +  CP(3)*T**2
C
      DIMENSION CP(1)
C
      A=CP(1)
      B=CP(2)*0.5
      C=CP(3)*0.3333333
C
      Y=TSTAT
      X=TZERO
      H=(X-Y)*(A+B*(X+Y)+C*(X**2+X*Y+Y**2))
      HOTS=H
C
      RETURN
C
      END
      SUBROUTINE HUNT
      COMMON /SPOR/ S(60),SO(60),SOP(60),SI(60),SIP(60),AREA(60)
      COMMON /NERD/ MF,NF,NT
      DO 1 K=1,NF
      S(K)=SO(K)-SI(K)
    1 AREA(K)=S(K)*(SO(K)+SI(K))
      LITTLE=1
      SMALL=AREA(1)
```

```
      DO 2 K=2,NF
      IF (SMALL.LE.AREA(K)) GO TO 2
      SMALL=AREA(K)
      LITTLE=K
2     CONTINUE
      AGONY=SQRTF(SMALL)
      CALL HEAD6
      WRITE (6,4) LITTLE,SMALL,AGONY
      WRITE (6,5)
      DO 3 K=1,NF
      AGONY=AREA(K)/SMALL
      SNAFU=SQRTF(AGONY)
      WRITE (6,6) K,AREA(K),AGONY,SNAFU
3     CONTINUE
      NT=LITTLE
      RETURN
C
C
4     FORMAT  (/20X,'MIN X-STA =',I4,3X,'MIN AREA=',F9.4,3X,' EFFECTIVE
     1RADIUS =',F10.4 / )
5     FORMAT  (/33X,'AREA',12X,'A/A*',11X,'R/R*' / )
6     FORMAT  (20X,I5,3F15.4)
      END
      SUBROUTINE HUNTZ (NY,NX,PRES,SLOPE)
C
C     GIVEN THE INDICIES (NY,NX) COMPUTE THE "W" AND "P" ARRAY VALUES.
C     NY = ORDINATE INDEX
C     NX = ABSCISSA INDEX
C
      COMMON /EROS/ W(21,60,4),P(21,60)
      COMMON /NERD/ MF,NF,NT,MUFF,LIMIT
      COMMON /STUPID/ F(21,60)
      COMMON /SUPER/ R(21,60)
      COMMON /SPOR/ S(60),SO(60),SOP(60),SI(60),SIP(60),AREA(60)
      COMMON /DUPER/ HA(21),HB(21)
C
C     --------------------
C
      J=NY
      K=NX
      PP=PRES
      FUZZ=F(J,K)
C
      COSIN=SQRTF(1.0/(1.0+SLOPE**2))
C
C
      CALL GRONK (FUZZ,PP,RHO,VEL,EASY)
C
      W1=RHO*R(J,K)
      WV=W1*VEL
      W2=WV*COSIN
      W3=W2*SLOPE
      W4=EASY*R(J,K)
C
      W(J,K,1)=W1
      W(J,K,2)=W2
```

```
      W(J,K,3)=W3
      W(J,K,4)=W4
      P(J,K)=PP
C
      RETURN
C
      END
      FUNCTION HZERO (ETA)
C
C     COMPUTE  STAGNATION ENTHALPY FOR STREAMLINE VALUE ETA
C
      COMMON /STAG/ A(8,21),CP(3,21),CV(3,21),WTM(21),GAMZ(21),RGAS(21),
     1PZ(21),TZ(21),HZ(21)
C
      ONE=1.0
      ZERO=0.0
      HZERD=HZ(21)
      X=ETA
      IF (X.EQ.ONE) RETURN
      IF (X.LT.ZERD) CALL BOMBER ('HZERO',1)
      IF (X.GT.ONE) CALL BOMBER ('HZERO',2)
      X=X*20.0
      N=X
      R=N
      R=X-R
      F2=R
      F1=ONE-F2
      HOHO=HZ(N+1)*F1+HZ(N+2)*F2
      HZERO=HOHO
C
      RETURN
C
      END
      SUBROUTINE INITAL
C
      COMMON /COUNT/ L,LL
      COMMON /NERD/ MF,NF,NT,MUFF,LIMIT,NASTY
      COMMON /TYME/ T,FLIT
      COMMON /FUBAR/ F1,F2,F3,F4,F5
C
      L=0
      LL=0
      T=0.0
      FLIT=L
      ZERO=0.0
      READ (5,2) K1,K2,K3,K4,K5
      WRITE (6,3) K1,K2,K3,K4,K5
      F1=K1
      F2=K2
      F3=K3
      F4=K4
      F5=K5
C
      SUM=F1+F2+F3+F4+F5
      IF (SUM.EQ.ZERO) CALL BOMBER ('FRITO',1)
C
```

```
      WRITE (6,4) F1,F2,F3,F4,F5,SUM
C
      F1=F1/SUM
      F2=F2/SUM
      F3=F3/SUM
      F4=F4/SUM
      F5=F5/SUM
C
      WRITE (6,4) F1,F2,F3,F4,F5
C
      CALL NAVSEA
      CALL STAGG
      CALL STATIC
      CALL HORNY
      CALL BEDLAM
      CALL CHECK
      DO 1 K=2,LIMIT
1     CALL PHINOU (K)
      CALL TRICKY
      CALL OUTPUT
C
      RETURN
C
C
2     FORMAT  (16I5)
3     FORMAT  (/20X,'INTERPOLATION FACTORS'//20X,5I5 )
4     FORMAT  (/20X,1P6G15.6)
      END
      FUNCTION LIBARY (SORFT)
      SORFT=0.0
      LIBARY=0
      RETURN
C
      ENTRY COSRF(X)
      COSRF=COS(X)
      RETURN
C
      ENTRY SINRF(X)
      SINRF=SIN(X)
      RETURN
C
      ENTRY COSF(X)
      COSF=COS(X)
      RETURN
C
      ENTRY SINF(X)
      SINF=SIN(X)
      RETURN
C
      ENTRY TANF(X)
      TANF=TAN(X)
      RETURN
C
      ENTRY SORTF(X)
      SORTF=0.0
      IF (X.LE.0.0D+0) RETURN
```

```
      SQRTF=SQRT(X)
      RETURN
C
      ENTRY ATANF(X)
      ATANF=ATAN(X)
      RETURN
C
      ENTRY DUMDUM(X,Y)
      DUMDUM=Y
      IF (X.LT.Y) DUMDUM=X
      RETURN
C     ----------
      ENTRY TANDF(X)
      WORGH=X/57.29578
      TANDF=TAN(WORGH)
      RETURN
      END
      SUBROUTINE LINEAR (TARGET,X,NASTY,F1,F2,J1,J2,NOCON)
C
C     TARGET = INPUT VALUE
C     X      = MONOTONIC ARRAY
C     NASTY  = NO. OF "X'S"
C     F1 & F2  = THE LINEAR INTERPOLATION FACTOR AND,
C     J1 & J2  = THE     "     "          INDICES, SUCH THAT:
C     TARGET = F1*X(J1) + F2*X(J2)
C     NOCON = NO SOLUTION CODE
C
      DIMENSION X(1)
C     ---------------------
      ZERO=0.0
      NX=NASTY
      NOCON=1
      IF (NX.LT.2) RETURN
      NOCON=2
      IF (NX.GT.21) RETURN
C
      NOCON=3
      G1=TARGET-X(1)
      G2=X(NX)-TARGET
      SUM=G2*G1
      IF (SUM.LT.ZERO) RETURN
      DO 1 K=2,NX
      J=K
      G2=TARGET-X(K-1)
      G1=X(K)-TARGET
      IF ((G1*G2).GE.ZERO) GO TO 2
    1 CONTINUE
      NOCON=4
      RETURN
C
    2 NOCON=5
      SUM=G1+G2
      IF (SUM.EQ.ZERO) RETURN
      NOCON=0
      F1=G1/SUM
      F2=G2/SUM
```

```
      J1=J-1
      J2=J
      RETURN
      END
      SUBROUTINE MAINP
C
      COMMON /DELTAS/ DX,DY,DT,DY2,DT2,DT4
      COMMON /COUNT/ L,LL
      COMMON /NERD/ MF,NF,NT
      COMMON /TYME/ T,FLIT
C
      READ (5,4) NOSEG,NOIT,K,KREEP
      IF (K.LE.0) CALL INITAL
      IF (K.GT.0) CALL RESTOR
      IF (K.LT.0) GO TO 3
      IF (KREEP.NE.0) CALL MEYER
C
      CALL HEAD6
C
      K=NOSEG*NOIT
      WRITE (6,5) NOSEG,NOIT,K
      IF (K.LE.0) CALL BOMBER ('MAINPROG',K)
C
      CALL SAVEWP
C
      CALL PLOTP
      CALL JINX
      DO 2 K=1,NOSEG
C
      DO 1 J=1,NOIT
      T=T+DT
      L=L+1
      FLIT=L
      CALL RESET
      CALL CYCLE
      CALL RESET
      CALL BNDRY
      CALL DOODLE
      CALL RESET
      CALL FIASCO
      CALL STREAM
      CALL RESET
1     CALL TRICKY
C
2     CALL OUTPUT
      CALL JINX
C
3     CALL STORE
C
      RETURN
C
C
C
4     FORMAT (16I5)
5     FORMAT (1/20X,' NO. SEGMENTS =',I4,5X,' NO. ITER/SEG. =',I4,5X,' T
     1OTAL ITERATIONS =',I5/)
```

```
      END
      SUBROUTINE MAXIE (X,NDEX)
C     FIND THE INDEX OF THE LARGEST VALUE OF ARRAY "X".
      DIMENSION X(1)
      N=NDEX
      J=1
      IF (N.LE.1) RETURN
      BIG=X(1)
      DO 1 K=2,N
      IF (BIG.GT.X(K)) GO TO 1
      J=K
      BIG=X(K)
    1 CONTINUE
      NDEX=J
      RETURN
C
C     ------
      ENTRY MINNIE(X,NDEX)
C     FIND THE INDEX OF THE SMALLEST VALUE  OF ARRAY "X".
      J=1
      N=NDEX
      IF (N.LE.1) RETURN
      SMALL=X(1)
      DO 2 K=2,N
      IF (SMALL.LT.X(N)) GO TO 2
      J=K
      SMALL=X(N)
    2 CONTINUE
      NDEX=J
C
      RETURN
      END
      SUBROUTINE MEYER
C     THIS SUBROUTINE RESERVED FOR COMPUTING A FREE PRESSURE BOUNDARY.
      RETURN
      END
      SUBROUTINE MONO (X,NX)
      DIMENSION X(1)
      N=NX
C
      DO 1 K=2,N
    1 X(K)=DUMDUM(X(K-1),X(K))
      RETURN
      END
      SUBROUTINE NAVSEA
C
      COMMON /FRAN/ AO(60),AI(60),BO(60),BI(60)
      COMMON /DELTAS/ DX,DY,DT,DY2,DT2,DT4
      COMMON /DUPER/ HA(21),HB(21)
      COMMON /EROS/ D(60,4),MAT(20),KODE(4),SDYDX(60)
      COMMON /FLEX/ NFLX
      COMMON /NDEX/ INDEX(9)
      COMMON /NERD/ MF,NF,NT,MUFF,LIMIT,NEWKY
      COMMON /SPOR/ S(60),SO(60),SOP(60),SI(60),SIP(60),AREA(60)
      COMMON /SUPER/ R(21,60)
      COMMON /SEXX/ NASTIE,IOIOT
```

```
      DATA ZERO/0.0/,ONE/1.0/,ZUBER/57.295787/
C
      CALL OREZ (S,360)
      CALL OREZ (D,264)
      READ (5,18) MF,NF
      READ (5,20) DX,DT
      WRITE (6,19) MF,NF
C
      LIMIT=NF-1
      MUFF=MF-1
      NEWKY=MUFF-1
      DY=MUFF
      DY=ONE/DY
      DY2=DY*0.5
      DT2=DT*0.5
      DT4=DT2*0.5
      WRITE (6,12) DT,DX,DY
      READ (5,23) ((D(K,J),J=1,4),K=1,NF)
      CALL EQUATE (SO,D,240)
C
      ENTRY HOAX
      WRITE (6,10)
      WRITE (6,13)
      WRITE (6,14) (K,SO(K),SOP(K),SI(K),SIP(K),K,K=1,NF)
C
      BUZZ=MF-1
      FUZZ=ONE/BUZZ
      DO 2 K=1,MF
      F1=MF-K
      HA(K)=F1/BUZZ
      F2=K-1
      HB(K)=F2/BUZZ
      DO 1 J=1,NF
1     R(K,J)=(F1*SI(J)+F2*SO(J))*FUZZ
2     CONTINUE
C
      CALL HEAD6
      WRITE (6,15)
      DO 3 J=1,NF
3     WRITE (6,21) J,(R(K,J),K=1,MF)
C
      CALL HUNT
C
      READ (5,18) NASTIE,IDIOT
      IDIOT=MINO(IDIOT,NT)
      IF (NASTIE.LT.0) NASTIE=NT
      WRITE (6,16) NT,NASTIE,IDIOT
      CALL HEAD6
C
      WRITE (6,10)
      WRITE (6,17)
      K=1
      DOK=0.0
      DIK=0.0
      DEGIK=0.0
      DEGOK=0.0
```

```
      X=ZERO
      WRITE (6,22) K,X,AREA(K),S(K),SO(K),DOK,SOP(K),DEGOK,SI(K),DIK,SIP
     1(K),DEGIK
C
      EPAR=0.5/DX
      EPARDY=EPAR*DY
      DO 4 K=2,LIMIT
      SDYDX(K)=S(K)*EPARDY
      DIK=(SI(K+1)-SI(K-1))*EPAR
      DOK=(SO(K+1)-SO(K-1))*EPAR
      DEGIK=ZUBER*ATANF(SIP(K))
      DEGOK=ZUBER*ATANF(SOP(K))
      X=(K-1)*DX
      WRITE (6,22) K,X,AREA(K),S(K),SO(K),DOK,SOP(K),DEGOK,SI(K),DIK,SIP
     1(K),DEGIK
    4 CONTINUE
      K=NF
      X=(K-1)*DX
      DOK=0.0
      DIK=0.0
      DEGIK=0.0
      DEGOK=0.0
      WRITE (6,22) K,X,AREA(K),S(K),SO(K),DOK,SOP(K),DEGOK,SI(K),DIK,SIP
     1(K),DEGIK
C
      DO 5 K=2,NT
      NFLX=K-1
      IF (SOP(K)-SOP(K-1)) 5,5,6
    5 CONTINUE
    6 WRITE (6,11) NFLX
C
      CALL NAVSTO
C
      INDEX(1)=1
      INDEX(2)=4
      INDEX(3)=NT-5
      INDEX(4)=NT-3
      INDEX(5)=NT-1
      INDEX(6)=NT
      INDEX(7)=NT+1
      INDEX(8)=NT+3
      INDEX(9)=NT+5
C
C     COMPUTE ANGLES.
      DO 7 K=1,NF
      BO(K)=ATANF(SOP(K))
      BI(K)=ATANF(SIP(K))
    7 CONTINUE
C
      DO 8 K=2,LIMIT
      AO(K)=SDYDX(K)*(BO(K+1)-BO(K-1))
      AI(K)=-SDYDX(K)*(BI(K+1)-BI(K-1))
    8 CONTINUE
      DO 9 K=2,LIMIT
      BO(K)=SDYDX(K)*SINRF(BO(K)+BO(K))
      BI(K)=-SDYDX(K)*SINRF(BI(K)+BI(K))
```

```
9     CONTINUE
C
      RETURN
C
C
10    FORMAT  (/20X,' NOZZLE GEOMETRY ' / )
11    FORMAT  (/20X,' INFLECTION POINT NO. =',I3 )
12    FORMAT  (/20X,'DT =',3PF10.4,'(MILLISECONDS)',5X,'DX =',0PF9.5,3X,
     1'DY =',F9.5 )
13    FORMAT  (/36X,'SO',13X,'SOP',13X,'SI',13X,'SIP'/ )
14    FORMAT  ( 5(20X,I5,2X,4F15.6,5X,I5/) )
15    FORMAT  (/20X,'"R" ARRAY'/ )
16    FORMAT  (/20X,'THROAT INDEX(NT) =',I3,4X,' LAST FLOW SMOOTH =',I3,
     14X,'LAST PRESSURE SMOOTH STATION =',I3)
17    FORMAT  (26X,'X',8X,'AREA',7X,'S',8X,'SO',6X,'DSO/DX',5X,3HSO',6X,
     16HSO'(D),7X,'SI',5X,'DSI/DX',4X,3HSI',6X,6HSI'(D) / )
18    FORMAT  (16I5)
19    FORMAT  (/20X,'NO. POINTS ON VERTICAL LINE(MF)=',I3,5X,'NO. OF WAL
     1L POINTS(NF) =',I3/)
20    FORMAT  (2E12.0)
21    FORMAT  (10X,I5,2X,12F9.4/17X,12F9.4)
22    FORMAT  ( 5(10X,I5,5X,11F10.4/) )
23    FORMAT  (4G15.0)
      END
      SUBROUTINE NAVSTO
C
      COMMON /NERD/ MF,NF
      COMMON /DELTAS/ DX,DY,DT
      COMMON /NAVIER/ DTDX,DTDX2,DTDX4,DTDX8,DTDY,DTDY2,DTDY4,DTDY8
      COMMON /STOKES/ A(60),B(60),H(60)
      COMMON /SPOR/ S(60),SO(60),SOP(60),SI(60),SIP(60),AREA(60)
C
      ONE=1.0
C
      DTDX=DT/DX
      DTDX2=DTDX*0.5
      DTDX4=DTDX2*0.5
      DTDX8=DTDX4*0.5
      DTDY=DT/DY
      DTDY2=DTDY*0.5
      DTDY4=DTDY2*0.5
      DTDY8=DTDY4*0.5
C
      DO 1 K=1,NF
      A(K)=(SOP(K)-SIP(K))/S(K)
      B(K)=SIP(K)/S(K)
      H(K)=ONE/S(K)
1     CONTINUE
C
      DO 2 K=1,180
2     A(K)=A(K)*DTDY2
C
      RETURN
C
      END
      SUBROUTINE NORMAL (X,NERD)
```

```
C     NORMALIZE A GIVEN VECTOR
      DIMENSION X(1)
      N=NERD
      SUM=0.0
      DO 1 K=1,N
    1 SUM=SUM+X(K)
      IF (SUM.LE.0.0) RETURN
      DO 2 K=1,N
    2 X(K)=X(K)/SUM
      RETURN
      END
      SUBROUTINE OREZ (X,NERD)
C
      DIMENSION X(1)
C
      N=NERD
C
      DO 1 K=1,N
    1 X(K)=-0.0
C
      RETURN
C
      END
      SUBROUTINE OUTPUT
C
      COMMON /COUNT/ L,LL
      COMMON /NERD/ MF,NF,NT
C
      N6=6
      N8=8
C
      LL=LL+1
C
      DO 2 K=1,NF
      CALL HEAD6
      CALL GROG (K)
C
      DO 1 J=1,MF
    1 CALL PLINE (J,K,N6)
C
    2 CONTINUE
C
      CALL ENIGMA
C
C     WRITE OUT AXIS.
      CALL HEAD8
      WRITE (8,5) L
C
      CALL FROG
C
      DO 3 K=1,NF
    3 CALL PLINE (1,K,N8)
C
C     WRITE OUT WALL.
C
      CALL HEAD8
```

```
      WRITE (8,6) L                                                     AO  34
C                                                                       AO  35
      CALL FROG                                                         AO  36
      DO 4 K=1,NF                                                       AO  37
4     CALL PLINE (MF,K,NB)                                              AO  38
C                                                                       AO  39
      RETURN                                                            AO  40
C                                                                       AO  41
C                                                                       AO  42
5     FORMAT  (/20X,'AXIS  ITERATION NO=',I5 / )                        AO  43
6     FORMAT  (/20X,'WALL  ITERATION NO=',I5 / )                        AO  44
      END                                                               AO  45-
      SUBROUTINE  PARAB($X,$Y,$)                                        AP   1
      IMPLICIT REAL*8(A-H,O-Z)                                          AP   2
      DIMENSION  $X(1),$Y(1),$(1)                                       AP   3
      $(1) = - 0.0                                                      AP   4
      $(2) = - 0.0                                                      AP   5
      $(3) = - 0.0                                                      AP   6
      X1 = $X(1)                                                        AP   7
      X2 = $X(2)                                                        AP   8
      X3 = $X(3)                                                        AP   9
      F1 = X1 - X2                                                      AP  10
      F2 = X2 - X3                                                      AP  11
      F3 = X3 - X1                                                      AP  12
      D = F1*F2*F3                                                      AP  13
      IF (D .EQ. 0.0D+0)  RETURN                                        AP  14
      D = -1.0/D                                                        AP  15
      Y1 = $Y(1)                                                        AP  16
      Y2 = $Y(2)                                                        AP  17
      Y3 = $Y(3)                                                        AP  18
      Y1 = Y1*F2                                                        AP  19
      Y2 = Y2*F3                                                        AP  20
      Y3 = Y3*F1                                                        AP  21
      $(1) = D*(Y1*X2*X3 + Y2*X1*X3 + Y3*X1*X2)                         AP  22
      $(2) = -D*(Y1*(X2+X3) + Y2*(X1+X3) + Y3*(X1+X2))                  AP  23
      $(3) = D*(Y1+Y2+Y3)                                               AP  24
      RETURN                                                            AP  25
      END                                                               AP  26
      SUBROUTINE PCLASS                                                 AO   1
      COMMON /SPY/ KCLASS,KGROUP                                        AO   2
      INTEGER*4  JERK(3,3)  /                                           AO  20
     *  'UNCL','ASSI','FIED'                                            AO  21
     *, 'CONF','IDEN','TIAL'                                            AO  22
     *, '...S','ECRE','T...' /                                          AO  23
      DIMENSION M(3)                                                    AO   3
      CALL EQUATE (M,JERK(1,KCLASS+1),3)                                AO   4
      CALL DATE (KDAY,KYR)                                              AO   5
      RETURN                                                            AO   6
      ENTRY PCL6                                                        AO   7
      WRITE (6,1) M                                                     AO   8
      WRITE (6,2) KDAY,KYR,KGROUP,M                                     AO   9
      RETURN                                                            AO  10
      ENTRY PCL8                                                        AO  11
      WRITE (8,1) M                                                     AO  12
      WRITE (8,2) KDAY,KYR,KGROUP,M                                     AO  13
      RETURN                                                            AO  14
```

```
      ENTRY PCL14
      WRITE (14,1) M
      WRITE (14,2) KDAY,KYR,KGROUP,M
      RETURN
C
1     FORMAT   ('2',T58,18('*')/T58,'*',T75,'*'/T58,'*  ',3A4,T75,'*'/
     1T58,'*',T75,'*'/T58,18('*') )
2     FORMAT  ('0'/' DATE=',I3,'/',I2,T58,18('*')/' GROUP',I2,T58,'*', T
     175,'*'/' ARO INC.',T58,'*  ',3A4,'  *'/' ARNOLD AIR FORCE STATION,
     2TENN.',T58,'*',T75,'*'/T58,18('*') / )
      END
      SUBROUTINE PHINOU (NXSTA)
C
C     COMPUTE THE PRESSURE CORRESPONDING TO A GIVEN MASS FLOW
C     SUBSONIC REGIME
C
      COMMON /NERO/ MF,NF,NT,MUFF,LIMIT
      COMMON /FLIGNR/ WEIGHT,PTHROT,PANIC
C
      TARGET=WEIGHT
      NX=NXSTA
      IF ((NX.LE.0).OR.(NX.GT.NF)) CALL BOMBER ('PHINOU',NX)
      XLOW=PTHROT
      XHIG=PANIC
C
      DO 3 KOUNT=1,20
      X=(XLOW+XHIG)*0.5
      CALL SETWP (X,NX)
      IF (XMASS(NX)-TARGET) 1,1,2
1     XHIG=X
      GO TO 3
2     XLOW=X
3     CONTINUE
C
      RETURN
      END
      SUBROUTINE PLINE (MY,NX,NUNIT)
      COMMON /COUNT/ L,LL
      COMMON /EROS/ W(21,60,5)
      COMMON /SPQR/ S(60),SO(60),SOP(60),SI(60),SIP(60),AREA(60)
      COMMON /STUPIO/ F(21,60)
      COMMON /SUPER/ R(21,60)
      M=MY
      N=NX
      NU=NUNIT
      P=W(M,N,5)
      W1=W(M,N,1)
      W2=W(M,N,2)
      W3=W(M,N,3)
      W4=W(M,N,4)
      RHO=W1/R(M,N)
      U=W2/W1
      V=W3/W1
      CALL FREAK (P,RHO,U,V,M,N,PZERO,TZERO,DEGRE,T,XM,VEL,GAM)
      FUZZ=F(M,N)
      IF (NU.NE.6) GO TO 1
```

```
      WRITE (6,2) N,FUZZ,W1,W2,W3,W4,P,T,XM,GAM,RHO,U,V,DEGRE,PZERO,TZER
     1O,VEL
      RETURN
    1 CONTINUE
      IF (NU.NE.8) CALL BOMBER ('PLINE',1)
      WRITE (8,2) N,FUZZ,W1,W2,W3,W4,P,T,XM,GAM,RHO,U,V,DEGRE,PZERO,TZER
     1O,VEL
      RETURN
C     ---------------------------
      ENTRY GROG(NASTY)
      N=NASTY
      WRITE (6,3) L,N,SI(N),SO(N),LL
      WRITE (6,4)
      RETURN
      ENTRY FROG
      WRITE (8,4)
      RETURN
C
    2 FORMAT  (3X,I5,2X,2PF12.2,3X,1P7G15.5/10X,1P8G15.5/ )
    3 FORMAT  (/20X,'ITERATION NO.=',I4,3X,'X-STATION NO.=',I3,3X,'Y-INN
     1ER =',F9.4,3X,'Y-OUTER =',F9.4,5X,'OUTPUT NO. =',I5 / )
    4 FORMAT  (11X,'STREAMLINE % ',8X,'W1',14X,'W2',12X,'W3',14X,'W4',10
     1X,'P-STAT',10X,'TEMP(R)',7X,'MACH NO' /15X,'CP/CV',9X,'DENSITY',11
     2X,'U',13X,'V',10X,'FLOW ANG(D)',7X,'P-STAG',10X,'T-STAG',7X,'VELOC
     3ITY' / )
      END
      SUBROUTINE PLOTP
C
C     OUTPUT PLOT PRESSURE DATA ON UNIT 10.
C
      COMMON /APE/ LURID(27)
      COMMON /COUNT/ L,LL
      COMMON /DELTAS/ DX
      COMMON /EROS/ W(21,60,4),P(21,60)
      COMMON /NERD/ MY,NX
      COMMON /SPOR/ S(60),SO(60),SOP(60),SI(60),SIP(60),AREA(60)
      COMMON /SUPER/ R(21,60)
C
      WRITE (10) LURID
      WRITE (10) R,SO,SI,DX,MY,NX
      RETURN
C     ------------------------
      ENTRY JINX
C
      WRITE (10) L,P
      RETURN
C
      END
      SUBROUTINE PMIN (PM)
C
C     "PZ" ARRAY SEARCH FOR MINIMUN VALUE = PM
C
      COMMON /NERD/ MF,NF,NT
      COMMON /STAG/ A(8,21),CP(3,21),CV(3,21),WTM(21),GAMZ(21),RGAS(21),
     1PZ(21),TZ(21)
C
```

```
C
      X=PZ(1)
      DO 1 K=2,MF
      IF (X.GT.PZ(K)) X=PZ(K)
    1 CONTINUE
C
      PM=X
C
      RETURN
C
      END
      FUNCTION PRAT (XMACH,GAMMA)
C     P/PT = F(MACH NO.)
      X=GAMMA/(1.0-GAMMA)
      PRAT=(1.0+0.5*(GAMMA-1.0)*XMACH**2)**X
      RETURN
      END
      FUNCTION PSTAG (CP,TSTAT,TZERO,PSTAT,SAGR)
      DIMENSION CP(3)
C
      CPZ=CP(1)
      CPA=CP(2)
      CPB=CP(3)
C
      T=TSTAT
      TZ=TZERO
      P=PSTAT
      RGAS=SAGR
C
      BARF=CPA/CPZ
      TRAF=0.5*CPB/CPZ
C
      TRAT=TZ/T
      POWER=CPZ/RGAS
      EPAR=(TZ-T)*(BARF+(TZ+T)*TRAF)
      XLAX=EXP(EPAR)
      PRAT=(TRAT*XLAX)**POWER
      PZERO=PRAT*P
C
      PSTAG=PZERO
C
      RETURN
      END
      SUBROUTINE PUNTZ (NY,NX,PRES)
      COMMON /EROS/ W(21,60,4),P(21,60)
      COMMON /NERD/ MF,NF,NT,MUFF,LIMIT
      COMMON /STUPID/ F(21,60)
      COMMON /SUPER/ R(21,60)
      COMMON /SPOR/ S(60),SO(60),SOP(60),SI(60),SIP(60),AREA(60)
      COMMON /DUPER/ HA(21),HB(21)
      J=NY
      K=NX
      PP=PRES
      FUZZ=F(J,K)
      SLOPE=HA(J)*SIP(K)+HB(J)*SOP(K)
      COSIN=SQRTF(1.0/(1.0+SLOPE**2))
```

```
      CALL GRONK (FUZZ,PP,RHO,VEL,EASY)
      W1=RHO*R(J,K)
      WV=W1*VEL
      W2=WV*COSIN
      W3=W2*SLOPE
      W4=EASY*R(J,K)
      W(J,K,1)=W1
      W(J,K,2)=W2
      W(J,K,3)=W3
      W(J,K,4)=W4
      P(J,K)=PP
      RETURN
      END
      FUNCTION PVNTS (WONE,WFOUR,MAMA,NERK)
C     COMPUTE STATIC PRESSURE AS A FUNCTION OF(W1,W4,STREAMLINE)
C
      COMMON /STUPID/ F(21,60)
      COMMON /SUPER/ R(21,60)
C
      W1=WONE
      W4=WFOUR
      M=MAMA
      N=NERK
C
      FUZZ=F(M,N)
      HO=HZERO(FUZZ)
      P=(HO*W1-W4)/R(M,N)
      PVNTS=P
C
      RETURN
C
      END
      FUNCTION RHOMAX (FUZZ)
C
C     "RHOMAX" COMPUTES THE STAGNATION DENSITY
C     AS A FUNCTION OF THE STREAMLINE VALUE.
C
      COMMON /STAG/ A(8,21),CP(3,21),CV(3,21),WTM(21),GAMZ(21),RGAS(21),
     1PZ(21),TZ(21),HZ(21),RHOZ(21)
C
      ONE=1.0
      ZERO=0.0
C
      F=FUZZ
      IF (F.EQ.ONE) GO TO 3
      IF (F.EQ.ZERO) GO TO 2
      IF (F*(ONE-F).LE.ZERO) CALL BOMBER ('"RHOMAX"',1)
      X=F*20.0
      NEWKY=X
      DIGIT=NEWKY
      F2=X-DIGIT
      F1=ONE-F2
      J=NEWKY+1
      K=J+1
      RZ=F1*RHOZ(J)+F2*RHOZ(K)
    1 RHOMAX=RZ
```

```
      RETURN
C
2     RZ=RHOZ(1)
      GO TO 1
C
3     RZ=RHOZ(21)
      GO TO 1
C
      END
      FUNCTION RIDDLE (NY,NX)
C
C     COMPUTE THE DENSITY "DIDDLE" FACTOR FOR
C     MASS CONSERVATION
C
      COMMON /STUPID/ F(21,60)
      COMMON /EROS/ W(21,60,4),P(21,60)
      COMMON /SUPER/ R(21,60)
      COMMON /THERMO/ CPX(3),CVX(3),RAG
C
      ONE=1.0
      ZERO=0.0
      K=NY
      J=NX
      RIDDLE=ZERO
      FUZZ=F(K,J)
      RHO=W(K,J,1)/R(K,J)
C     COMPUTE PROPERTIES AS A FUNCTION OF RHO.
      CALL FONKY (FUZZ,RHO,PSTAT,VEL,EASY,T)
C
      VV=VEL**2
      IF (VV.EQ.ZERO) CALL BOMBER ('*RIDDLE*',2)
      GAMMA=CSUBP(T)/CSUBV(T)
C
      BETA=GAMMA*RAG*T/VV
      XM=SQRTF(ONE/BETA)
      RID=ONE-BETA
      RIDDLE=RID
C
      RETURN
C
      END
      SUBROUTINE ROGUE
C
      COMMON /EROS/ W(21,60,5)
      COMMON /NERD/ MF,NF,NT
      COMMON /SUPER/ R(21,60)
C
C     SMOOTHING ROUTINE FOR DENSITY
C
C     PRESERVE STATION 1.
      DO 1 J=1,5
1     CALL EQUATE (W(1,60,J),W(1,1,J),MF)
C
C     COMPUTE DENSITY AT EACH W(*,*,1)
      DO 3 K=1,MF
      DO 2 J=1,NF
```

```
2     W(K,J,1)=W(K,J,1)/R(K,J)
3     CONTINUE
C
C
C     SHIFT RHO UP + 2 FOR TEMPORARY STORAGE
      DO 4 J=1,NF
      K=NF+1-J
4     CALL EQUATE (W(1,K+2,1),W(1,K,1),MF)
C
      CALL SLICK
C
C     RESTORE FIRST STATION
      DO 5 J=1,5
5     CALL EQUATE (W(1,1,J),W(1,60,J),MF)
      RETURN
      END
      SUBROUTINE SAM
C
      COMMON /EROS/ W(21,60,4),P(21,60)
      COMMON /NERD/ MF,NF,NT,MUFF
      COMMON /STUPID/ F(21,60)
      COMMON /SUPER/ R(21,60)
      COMMON /WORK/ X(60)
      COMMON /SEXX/ NASTIE,IDIOT
C
      IF (IDIOT.LE.2) RETURN
C
C     PRESSURE SMOOTHING AT CONSTANT Y.
      DO 3 K=2,MUFF
C
      DO 1 J=1,IDIOT
1     X(J)=P(K,J)
C
      CALL SMOOTH (X,IDIOT,4)
      MORON=IDIOT-1
      DO 2 J=2,MORON
      CALL GRONK (F(K,J),X(J),RHO,VEL,EASY)
      RWR=SQRTF(W(K,J,2)**2+W(K,J,3)**2)
      CSN=W(K,J,2)/RWR
      SN=W(K,J,3)/RWR
      W(K,J,1)=RHO*R(K,J)
      W(K,J,2)=W(K,J,1)*VEL*CSN
      W(K,J,3)=W(K,J,1)*VEL*SN
      W(K,J,4)=EASY*R(K,J)
      P(K,J)=X(J)
2     CONTINUE
C
3     CONTINUE
C
      RETURN
      END
      SUBROUTINE SAVEWP
      DIMENSION A(21,5,2)
      COMMON /EROS/ W(21,60,5)
      COMMON /NERD/ MF,NF,NT,MUFF,LIMIT,NASTY
      DO 2 K=1,21
```

```
      DO 1 J=1,5
      A(K,J,1)=W(K,1,J)
    1 A(K,J,2)=W(K,NF,J)
    2 CONTINUE
      RETURN
C
C     -----
      ENTRY RESET
      DO 4 K=1,21
      DO 3 J=1,5
      W(K,1,J)=A(K,J,1)
    3 W(K,NF,J)=A(K,J,2)
    4 CONTINUE
      RETURN
      END
      SUBROUTINE SETWP (PRES,NXSTA)
      ENTRY ZETWP(PRES,NXSTA)
C
C     PRES = STATIC PRESSURE
C     NXSTA = "X" STATION NO.
C
C     "SETWP" AND "ZETWP" COMPUTES THE "W" AND "P" ARRAY FOR A GIVEN
C     "X" STATION AT A CONSTANT STATIC PRESSURE.
C
      COMMON /NERD/ MF
    1 NX=NXSTA
      PP=PRES
C
C
      DO 2 K=1,MF
    2 CALL PUNTZ (K,NX,PP)
      RETURN
C
      END
      SUBROUTINE SLICK
C
      COMMON /ERDS/ W(21,60,4)
      COMMON /NERD/ MF,NF,NT,MUFF,NEWKY
C
C     COMPUTE A SMOOTHING BASED ON 4-POINT NEIGHBORHOOD.
C
      DO 2 J=2,NEWKY
C
      DO 1 K=2,MUFF
      L=J+2
      RU=W(K+1,L,1)
      RD=W(K-1,L,1)
      RL=W(K,L-1,1)
      R=W(K,L,1)
      RR=W(K,L+1,1)
    1 W(K,J,1)=BANDIT(RU,RD,RL,R,RR)
    2 CONTINUE
C
C     RESET AXIS AND WALL BOUNDARY.
      DO 3 J=2,NF
      W(1,J,1)=W(1,J+2,1)
```

```
3     W(MF,J,1)=W(MF,J+2,1)
C
C     RESET LAST STATION
      DO 4 K=2,MUFF
4     W(K,NF,1)=W(K,NF+2,1)
      RETURN
C
      END
      SUBROUTINE SMOOTH (X,NX,NTIMES)
C
      DIMENSION X(1), Z(100)
C
      N=NX
      NERD=N-1
      LIMIT=NTIMES
      F=0.8125
      FOO=0.5-0.5*F
C
      DO 2 J=1,LIMIT
      CALL EQUATE (Z,X,N)
      DO 1 K=2,NERD
1     X(K)=F*Z(K)+FOO*(Z(K+1)+Z(K-1))
2     CONTINUE
C
      RETURN
C
      END
      SUBROUTINE SNAFU (MM,NN)
C
C     COMPUTE THE PARTIAL FUNCTIONS FOR A 3X3 SQUARE
C     WITH A CENTER POINT LOCATED AT Y=M , X=N .
C
      COMMON /EROS/ W(21,60,4)
      COMMON /STUPID/ F(21,60)
      DIMENSION A(4)
C
      M=MM
      N=NN
C
      KOUNT=0
C
      DO 2 KRUD=1,3
      K=M+KRUD-2
C
      DO 1 JOLLY=1,3
      J=N+JOLLY-2
      KOUNT=KOUNT+1
      A(1)=W(K,J,1)
      A(2)=W(K,J,2)
      A(3)=W(K,J,3)
      A(4)=W(K,J,4)
      FUZZ=F(K,J)
      CALL EVAL (A,KOUNT,FUZZ)
C
1     CONTINUE
C
```

```
    2 CONTINUE
C
C
      RETURN
C
      END
      SUBROUTINE STAGG
C
      COMMON /STAG/ A(8,21),CP(3,21),CV(3,21),WTM(21),GAM2(21),RGAS(21),
     1PZ(21),TZ(21),HZ(21),RHOZ(21)
C
      COMMON /CPDATA/ CPSPEC(3,8),SPCMWT(8),NAME(8)
C
      COMMON /EROS/ B(8,50),X(50),P(50),T(50),F(50),NSTAG
      COMMON /LIMITS/ VMIN
C
C     ---------------------
      CALL CPEVAL
C
      CALL DREZ (A,420)
C
      GCJ=32.174*777.648
      GRINCH=1.98726
      WENCH=GRINCH*GCJ
C
      NS=21
      ONE=1.0
C
      CALL HEAD6
C
      READ (5,16) NSTAG
      WRITE (6,17) NSTAG
      NX=NSTAG
C     INPUT DATA BASED ON FOLLOWING PARAMETERS:
C     X - STREAMLINE FRACTION - 0.0 AXIS , 1.0 WALL
C     P - PRESSURE (PSIA)
C     T - TEMPERATURE (RANKINE)
C     B - RELATIVE MASS
C
      READ (5,18) (X(K),P(K),T(K),(B(J,K),J=1,8),K=1,NSTAG)
      WRITE (6,11) NAME
C
      WRITE (6,19) (K,X(K),P(K),T(K),(B(J,K),J=1,8),K=1,NSTAG)
C
      CALL HEAD6
C
C     NORMALIZE B'S AND CONVERT PSIA TO PSFA.
      DO 1 K=1,NSTAG
      P(K)=P(K)*144.0
    1 CALL NORMAL (B(1,K),8)
C
      WRITE (6,12) NAME
      WRITE (6,19) (K,X(K),P(K),T(K),(B(J,K),J=1,8),K=1,NSTAG)
C
      FURD=NS-1
C
```

```
      DO 4 K=1,NS
      TARGET=K-1
      TARGET=TARGET/FURD
C
      CALL LINEAR (TARGET,X,NX,F1,F2,J1,J2,NOCON)
C
      IF (NOCON.NE.0) CALL BOMBER ('STAGG',NOCON)
C
      PZ(K)=P(J1)*F1+P(J2)*F2
      TZ(K)=T(J1)*F1+T(J2)*F2
      F(K)=TARGET
C
C
      SUM=0.0
      DO 3 J=1,8
      A(J,K)=B(J,J1)*F1+B(J,J2)*F2
C
      DO 2 L=1,3
2     CP(L,K)=CP(L,K)+A(J,K)*CPSPEC(L,J)
C
      SUM=SUM+A(J,K)/SPCMWT(J)
3     CONTINUE
C
      WTM(K)=ONE/SUM
      RGAS(K)=WENCH*SUM
4     CONTINUE
C
      DO 5 K=1,NS
5     RHOZ(K)=PZ(K)/(TZ(K)*RGAS(K))
C     CONVERT CP UNITS FROM BTU/LBM TO FT**2/SEC**2
      DO 6 K=1,63
6     CP(K,1)=CP(K,1)*GCJ
C
      DO 7 K=1,NS
      CV(1,K)=CP(1,K)-RGAS(K)
      CV(2,K)=CP(2,K)
      CV(3,K)=CP(3,K)
7     CONTINUE
C
      WRITE (6,12) NAME
C
      WRITE (6,19) (K,F(K),PZ(K),TZ(K),(A(J,K),J=1,8),K=1,NS)
C
      CALL HEAD6
      WRITE (6,13)
      WRITE (6,20) (K,WTM(K),RGAS(K),(CP(J,K),J=1,3),(CV(J,K),J=1,3),K=1
     1,NS)
C
C     COMPUTE EFFECTIVE GAMMA AT STAGNATION
      WRITE (6,14)
C
      DO 8 K=1,NS
      HZ(K)=TZ(K)*(CP(1,K)+TZ(K)*(CP(2,K)*0.5+0.3333333*CP(3,K)*TZ(K)))
      G=CP(1,K)+TZ(K)*(CP(2,K)+TZ(K)*CP(3,K))
      H=CV(1,K)+TZ(K)*(CV(2,K)+TZ(K)*CV(3,K))
      GAMMA=G/H
```

```
      GAMZ(K)=GAMMA
      WRITE (6,15) K,GAMMA,G,H,HZ(K)
 8    CONTINUE
C
C     COMPUTE MAXIMUM SPEED OF SOUND
      DO 9 K=1,NS
      X(K)=GAMZ(K)*RGAS(K)*TZ(K)
 9    CONTINUE
C
      K=21
      CALL MAXIE (X,K)
      AMAX=SQRTF(X(K))
      VMIN=AMAX*0.15
      VMIN=AMAX*0.10
      WRITE (6,10) K,AMAX,VMIN
      RETURN
C
C
C
 10   FORMAT  (/20X,'INDEX OF MAX. STAGNATION SOUND SPEED =',I3,3X,'SPEE
     1D =',F9.2,'(FT/SEC)',5X,'VMIN =',F9.2,'(FT/SEC)' / )
 11   FORMAT  (/16X,'STREAM FRACT.',8X,'STAGNATION',19X,'RELATIVE MASS O
     1F SPECIE'/30X,'PSIA',7X,'T-R',8(5X,A4) / )
 12   FORMAT  (/30X,'PSFA',7X,'T-R',8(5X,A4)/)
 13   FORMAT  (/20X,'MOL WT',5X,'GAS CON',17X,'CP COEFFICIENTS',22X,'CV
     1COEFFICIENTS' / )
 14   FORMAT  (/20X,'STAGNATION EVALUATION' //32X,'GAMMA',10X,'CP',12X,'
     1CV',10X,'ENTHAL' / )
 15   FORMAT  (20X,I5,5X,F8.4,2X,1P3G15.6)
 16   FORMAT  (16I5)
 17   FORMAT  (/20X,'STAGNATION PARAMETERS' ,5X,'NO. INPUT POINTS=',I5/)
 18   FORMAT  (3E12.0,4X,8E5.0)
 19   FORMAT  (10X,I5,F8.4,F12.3,F10.1,8F9.4 )
 20   FORMAT  (10X,I5,2X,1P8G13.4)
      END
      SUBROUTINE START
      COMMON /APE/ LINE(31)
      DIMENSION LUSH(27), KARD(20)
      EQUIVALENCE (LINE(1),LUSH(1),KARD(1))
      DATA KRUD/'1 **'/,MUNG/'****'/,MUD/'%*<'/
 1    READ (5,2,END=99)  KARD
      IF (KARD(1).EQ.MUNG) CALL ENDJOB
      IF (KARD(1).NE.KRUD) GO TO 1
      KARD(1)=MUD
      LINE(31)=0
C     ---------------
      ENTRY HEAD6
      CALL PCL6
C     ---------------
      CALL TIME (IDIOT,NSECS)
      MINUTE=NSECS/60
      NSEC=NSECS-MINUTE*60
      KHOUR=MINUTE/60
      MINUTE=MINUTE-KHOUR*60
      LINE(28)=KHOUR
      LINE(29)=MINUTE
```

```
      LINE(30)=NSEC
      LINE(31)=LINE(31)+1
      WRITE (6,2) LINE
      RETURN
   99 CALL ENDJOB
      RETURN
C     ------------------
      ENTRY HEADB
      CALL PCLB
      WRITE (8,2) LUSH
      RETURN
C     ------------------
      ENTRY HEAD14
      CALL PCL14
      WRITE (14,2) LUSH
      RETURN
C
    2 FORMAT     (27A4,I4,'1',I2,'.',I2,' PAGE',I4/)
      END
      SUBROUTINE STATIC
C
C     COMPUTE EXTREMALS STATIC PRESSURE DIST. FACTORS.
C
      COMMON /ABLE/ AX(21,2),BX(21,2)
      COMMON /EROS/ B(8,50),X(50),P(50),T(50),F(50),S(50)
C
      COMMON /NERO/ MF,NF,NT,MUFF
C
      DO 1 K=1,42
      BX(K,1)=0.0
    1 AX(K,1)=1.0
      FURD=MUFF
      DO 2 K=1,MF
      TARGET=K-1
      TARGET=TARGET/FURD
    2 F(K)=TARGET
      CALL HEAD6
      WRITE (6,11)
C
      DO 8 L=1,2
      READ (5,14) NSTAT
      IF (NSTAT) 10,7,3
    3 IF (NSTAT-21) 4,4,9
    4 N=NSTAT
      READ (5,15) (X(K),P(K),S(K),K=1,N)
      WRITE (6,12)
      WRITE (6,16) (K,X(K),P(K),S(K),K=1,N)
      NX=N
      DO 6 K=1,MF
      TARGET=F(K)
      CALL LINFAR (TARGET,X,NX,F1,F2,J1,J2,NOCON)
      IF (NOCON) 9,5,9
    5 AX(K,L)=P(J1)*F1+P(J2)*F2
      BX(K,L)=S(J1)*F1+S(J2)*F2
      F(K)=TARGET
    6 CONTINUE
```

```
C
7     WRITE (6,13)
      WRITE (6,16) (K,F(K),AX(K,L),BX(K,L),K=1,MF)
8     CONTINUE
C
      RETURN
9     CALL BOMBER ('-STATIC-',5)
10    RETURN
C
C
11    FORMAT (/20X,' EXTREMAL STATIC PRESS. DIST. FACTORS ' /)
12    FORMAT (18X,5HINPUT,6X,4HR/RW,6X,11HPRES. FACT./)
13    FORMAT (/16X,8HCOMPUTED,5X,4HR/RW,6X,11HPRES. FACT./)
14    FORMAT (16I5)
15    FORMAT  (3E12.0)
16    FORMAT  (20X,I5,2X,3F10.5)
      END
      SUBROUTINE STORE
C
      COMMON /ABLE/ AX(21,4)
      COMMON /APE/ KITLE,LABEL(19)
      COMMON /COUNT/ L,LL
      COMMON /CPDATA/ TGFH(40)
      COMMON /DELTAS/ DX,DY,DT,DY2,DT2,DT4
      COMMON /DUPER/ HA(21),HB(21)
      COMMON /EROS/ W(21,60,4),P(21,60)
      COMMON /FANG/ F(9,4),G(9,4)
      COMMON /FLIGNR/ WEIGHT,PTHROT,PANIC
      COMMON /FRAN/ AO(60),AI(60),BO(60),BI(60)
      COMMON /FUBAR/ F1,F2,F3,F4,F5
      COMMON /FURD/ WMP(4),WMM(4),WNP(4),WNM(4),WMN(4)
      COMMON /LIMITS/ VMIN
      COMMON /NAVIER/ DTDX,DTDX2,DTDX4,DTDX8,DTDY,DTDY2,DTDY4,DTDY8
      COMMON /NDEX/ INDEX(9)
      COMMON /NERD/ MF,NF,NT,MUFF,LIMIT,NASTY
      COMMON /NITWIT/ CLOWN,VULGAR
      COMMON /PSIA/ PSIA(16),NPSIA
      COMMON /SKALE/ SIMPLE(4)
      COMMON /SPOR/ S(60),SO(60),SOP(60),SI(60),SIP(60),AREA(60)
      COMMON /SPY/ KCLASS,KGROUP
      COMMON /STAG/ AA(8,21),CP(3,21),CV(3,21),WTM(21),GAMZ(21),RGAS(21)
     1,PZ(21),TZ(21),HZ(21),RHOZ(21)
      COMMON /STOKES/ A(60),B(60),H(60)
      COMMON /STUPID/ FOOL(21,60)
      COMMON /SUPER/ R(21,60)
      COMMON /THERMO/ RHFJ(7)
      COMMON /TYME/ T,FLIT
      COMMON /WALL/ XWALL(100)
      COMMON /WORK/ XTRA(99)
      COMMON /SEXX/ NASTIE,IDIOT
C
C     ------------------------
C
      REWIND 9
      WRITE (9) KITLE,LABEL,L,LL,TGFH,DX,DY,DT,DY2,DT2,DT4,HA,HB,W,P,F,G
     1,WEIGHT,PTHROT,PANIC,F1,F2,F3,F4,F5,WMP,WMM,WNP,WNM,WMN,DTDX,DTDX2
```

```
     2,DTDX4,DTDX8,DTDY,DTDY2,DTDY4,DTDY8,MF,NF,NT,MUFF,LIMIT,NASTY,CLOW
     3N,VULGAR,S,SO,SOP,SI,SIP,AREA,KCLASS,KGROUP,AA,CP,CV,WTM,GAMZ,RGAS
     4,PZ,TZ,HZ,RHOZ,A,B,H,FODL,R,RHFJ,T,FLIT,XTRA,PSIA,NPSIA,SIMPLE,XWA
     5LL,VMIN,AX,INDEX,AO,AI,BO,BI,NASTIE,IDIOT
C
      WRITE (14,1)
C
      RETURN
C
C     ------------------------
C
      ENTRY RESTOR
      READ (9) KITLE,LABEL,L,LL,TGFH,DX,DY,DT,DY2,DT2,DT4,HA,HB,W,P,F,G,
     1WEIGHT,PTHROT,PANIC,F1,F2,F3,F4,F5,WMP,WMM,WNP,WNM,WMN,DTDX,DTDX2,
     2DTDX4,DTDX8,DTDY,DTDY2,DTDY4,DTDY8,MF,NF,NT,MUFF,LIMIT,NASTY,CLOWN
     3,VULGAR,S,SO,SOP,SI,SIP,AREA,KCLASS,KGROUP,AA,CP,CV,WTM,GAMZ,RGAS,
     4PZ,TZ,HZ,RHOZ,A,B,H,FODL,R,RHFJ,T,FLIT,XTRA,PSIA,NPSIA,SIMPLE,XWAL
     5L,VMIN,AX,INDEX,AO,AI,BO,BI,NASTIE,IDIOT
C
C
      WRITE (6,2)
C
      RETURN
C
C
1     FORMAT  ('1',20X,'STORED ON NINE' /)
2     FORMAT ('1',20X,'RESTORED FROM NINE'/)
      END
      SUBROUTINE STREAM
C
C     COMPUTE THE STREAM FUNCTION "F" FOR EACH POINT IN THE FIELD.
C
C     INTEGRATE THE MASS INTEGRAND W(*,*,2) = RHO*U*R
C     THEN NORMALIZE THE RESULTS.
C
      COMMON /EROS/ W(21,60,5)
      COMMON /NERD/ MF,NF,NT
      COMMON /STUPID/ F(21,60)
C
      DO 3 NX=1,NF
      F(1,NX)=0.0
      DO 1 K=2,MF
1     F(K,NX)=F(K-1,NX)+0.5*(W(K-1,NX,2)+W(K,NX,2))
C
C
C     NORMALIZE
C
      DO 2 K=1,MF
2     F(K,NX)=F(K,NX)/F(MF,NX)
C
3     CONTINUE
C
      RETURN
      END
      SUBROUTINE TRICKY
C
```

```
      COMMON /ZEROS/ W(21,60,4),P(21,60)
      COMMON /COUNT/ L,LL
      COMMON /NDEX/ INDEX(9)
      COMMON /NERD/ MF,NF,NT
      COMMON /STAG/ A(8,21),CP(3,21),CV(3,21),WTM(21),GAMZ(21),RGAS(21),
     1PZ(21),TZ(21),HZ(21),RHOZ(21)
C
      DIMENSION X(9), Y(9)
C
      J=MOD(L-1,25)
      IF (J.NE.0) GO TO 1
      CALL HEAD14
      WRITE (14,5) INDEX
C
1     CONTINUE
      DO 2 K=1,9
      J=INDEX(K)
      X(K)=P(MF,J)/PZ(MF)
      Y(K)=P(1,J)/PZ(1)
2     CONTINUE
C
      WRITE (14,3) X,L
      WRITE (14,4) Y
C
      RETURN
C
C
C
3     FORMAT (1X,9F12.4,I8)
4     FORMAT (7X,9F12.4)
5     FORMAT (/20X,30H(P/PO) WALL/AXIS RESPECTIVELY//1X,9I12/)
      END
      SUBROUTINE TROPIC (PO,TO,PSTAT,F,DEN,VEL,EASY)
C                                INPUT           COMPUTED
C
C     COMPUTE STATIC DENSITY,VELOCITY,AND "E" INTEGRAL
C     FOR AN ISENTROPIC EXPANSION FROM GIVEN
C     STAGNATION CONDITIONS FOR A REAL GAS OF THE FORM:
C     CP = A0 + A1*T + A2*T**2    &   P = RHO*R*T
C
C     PO - STAGNATION PRESSURE
C     TO - STAGNATION TEMPERATURE
C     PSTAT - STATIC PRESSURE
C     F - STREAMLINE VALUE
C
C     DEN - STATIC DENSITY
C     VEL - VELOCITY
C     EASY - SUM OF INTERNAL + KINETIC ENERGY PER UNIT VOLUME
C
      COMMON /STAG/ A(8,21),CP(3,21),CV(3,21),WTM(21),GAMZ(21),RGAS(21),
     1PZ(21),TZ(21)
      COMMON /THERMO/ CPX(3),CVX(3),RAG
      COMMON /LIMITS/ VMIN
C
C
      ZERO=0.0
```

```
      PO=PO                                                             BP  25
      TO=TO                                                             BP  26
      P=PSTAT                                                           BP  27
      FUZZ=F                                                            BP  28
C                                                                       BP  29
      PRAT=P/PO                                                         BP  30
C                                                                       BP  31
      T=HANKY(CPX,PRAT,TO,RAG)                                          BP  32
      RHO=P/(T*RAG)                                                     BP  33
      DEN=RHO                                                           BP  34
C                                                                       BP  35
      DH=HOTS(CPX,T,TO)                                                 BP  36
      VELOC=SQRTF(DH+DH)                                                BP  37
      VELOC=AMAX1(VELOC,VMIN)                                           BP  38
      VEL=VELOC                                                         BP  39
C                                                                       BP  40
      HO=HZERO(FUZZ)                                                    BP  41
      E=HO*RHO-P                                                        BP  42
      EASY=E                                                            BP  43
C                                                                       BP  44
      RETURN                                                            BP  45
      END                                                               BP  46-
      FUNCTION TSTAG (CP,TSTAT,VSQR)                                    BQ   1
      DIMENSION CP(3)                                                   BQ   2
C                                                                       BQ   3
      T=TSTAT                                                           BQ   4
      W=VSQR*0.5                                                        BQ   5
      A=CSUBP(TSTAT)                                                    BQ   6
C                                                                       BQ   7
      TZ=T+W/A                                                          BQ   8
      DO 1 K=1,5                                                        BQ   9
      H=HOTS(CP,T,TZ)                                                   BQ  10
      ERROR=W-H                                                         BQ  11
      CPTZ=CSUBP(TZ)                                                    BQ  12
      DT=ERROR/CPTZ                                                     BQ  13
      TZ=TZ+DT                                                          BQ  14
    1 CONTINUE                                                          BQ  15
C                                                                       BQ  16
      TSTAG=TZ                                                          BQ  17
C                                                                       BQ  18
      RETURN                                                            BQ  19
      END                                                               BQ  20-
      SUBROUTINE WEIRDO                                                 BR   1
C                                                                       BR   2
      COMMON /EROS/ W(21,60,4),P(21,60)                                 BR   3
      COMMON /NERD/ M,N,NT,MUFF,LIMIT,NEWKY                             BR   4
C                                                                       BR   5
      DO 3 I=1,NEWKY                                                    BR   6
      K=M-I                                                             BR   7
C                                                                       BR   8
      DO 2 J=2,LIMIT                                                    BR   9
      DO 1 L=1,4                                                        BR  10
    1 W(K,J,L)=W(K-1,J-1,L)                                             BR  11
    2 CONTINUE                                                          BR  12
C                                                                       BR  13
    3 CONTINUE                                                          BR  14
```

```
C
      DO 5 K=2,MUFF
      DO 4 J=2,LIMIT
4     P(K,J)=PVNTS(W(K,J,1),W(K,J,4),K,J)
5     CONTINUE
C
      RETURN
      END
      FUNCTION XMASS (NXSTA)
C
C     COMPUTE THE MASS FLOW AT A GIVEN "X" STATION NO.
C     TRAPEZOIDAL INTEGRATION OF THE RHO*U*R TERM.
C
C     NOTE: "W" ARRAY MUST BE PREVIOUSLY COMPUTED
C
      COMMON /EROS/ W(21,60,4),P(21,60)
      COMMON /NERD/ MF,NF,NT,MUFF
      COMMON /SPOR/ S(60)
C
      K=NXSTA
      SUM=(W(1,K,2)+W(MF,K,2))*0.5
C
      DO 1 J=2,MUFF
1     SUM=SUM+W(J,K,2)
C
      XMASS=SUM*S(K)
C
      RETURN
C
      END
      BLOCK DATA
C
      COMMON /CPDATA/ CP(3,8),WTM(8),NAME(8)
      COMMON /PGMNO/ NPROG(5)
      COMMON /EROS/ KW(6300)
      COMMON /SUPER/ KR(1260)
C
C     CP COEFFICIENTS FOR EACH CHEMICAL SPECIE
C     UNITS OF BTU/LB.MASS
C
      DATA CP/0.231800,1.040000E-05,7.166000E-09,0.120765,1.720251E-04,-
     14.235305E-08,0.261531,-5.179134E-05,1.07508E-07,0.430062,1.676842E
     2-05,2.778587E-08,0.190481,5.646879E-05,-9.812500E-09,0.246445,-3.5
     364750E-06,1.251100E-08,0.124349,0.0,0.0,3.22600,1.757600E-04,1.0E-
     408/
C
      DATA WTM/28.97,44.011,28.011,18.016,32.000,28.000,39.944,2.016/
C
      DATA NAME/'AIR','CO2','CO','H2O','O2','N2','A','H2'/
C
      DATA KR/1260*0/
C
      DATA KW/6300*0/
      INTEGER*4  NPROG/'SER00238 (08-18-72) '/
C
      END
```

Choked Version

```
//LNK.SYSLIN  DD *
 INCLUDE SYSTFORT
 ENTRY MAIN
C      REAL GAS TIME-DEPENDENT ANNULAR NOZZLE FLOW.
C      RUN ON IBM 370/155 ARNOLD ENGINEERING DEVELOPMENT CENTER,
C       TULLAHOMA, TENNESSEE,37389.
C      FOR INFORMATION CONCERNING THIS PROGRAM CAONTACT,
C      ENGINEER -- SAM WEHOFER PHONE. 615-455-2611  EXT 533.
C      ANALYST-- W. C. MOGER    PHONE. 615-455-2611  EXT 7131.
C
       DATA K8/8/,K14/14/
       WRITE (6,1)
       WRITE (8,2) K8
       WRITE (14,2) K14
       CALL SER142
       CALL ENDJOB
       CALL EXIT
       STOP
C
1      FORMAT  ('1',20X,' PROGRAM NO. SER00142  AUG 8,1972 '/)
2      FORMAT  ('1',20X,'OUTPUT FROM DATA SET NO.',I3/'0' )
       END
       FUNCTION BANDIT (X1,X2,X3,X4,X5)
       COMMON /FUBAR/ F1,F2,F3,F4,F5
       BAN=F1*X1+F2*X2
       DIT=F3*X3+F5*X5
       BANDIT=BAN+DIT
       BANDIT=BANDIT+F4*X4
       RETURN
       END
       SUBROUTINE BEDLAM
       COMMON /FLIGNR/ WEIGHT,PTHROT,PANIC
       COMMON /COUNT/ L,LL
       COMMON /NERD/ MF,NF,NT
       DIMENSION A(3), X(3), Y(3)
       ZERO=0.0
       CALL PMIN (PANIC)
       XLOW=0.3*PANIC
       DELX=0.005000001*PANIC
       JERK=0
       DO 1 K=1,3
       X(K)=XLOW+(K-1)*DELX
       CALL SETPP (X(K),NT)
       Y(K)=XMASS(NT)
1      CONTINUE
       DO 2 K=1,69
       JERK=K
       CALL PARAB (X,Y,A)
       IF (A(3).EQ.ZERO) A(3)=1.0D+69
       XTEST=-0.5*A(2)/A(3)
       IF (A(3).GE.ZERO) GO TO 3
       IF ((X(1).LE.XTEST).AND.(X(3).GE.XTEST)) GO TO 4
       X(1)=X(2)
       Y(1)=Y(2)
       X(2)=X(3)
       Y(2)=Y(3)
```

```
      X(3)=X(3)+DELX
      CALL SETWP (X(3),NT)
      Y(3)=XMASS(NT)
    2 CONTINUE
    3 CONTINUE
      CALL BOMBER ('BEDLAM',JERK)
      RETURN
    4 CONTINUE
      CALL SETWP (XTEST,NT)
      WEIGHT=XMASS(NT)
      PTHROT=XTEST
      WRITE (6,5) WEIGHT,PTHROT,PANIC
      RETURN
C
    5 FORMAT (/20X,'WEIGHT=',1PG15.6,3X,'PTHROT=',G15.6,3X,'PANIC=',G15
     1.6 / )
      END
      SUBROUTINE BNDRY
C
      COMMON /DELTAS/ DX,DY,DT,DY2,DT2,DT4
      COMMON /SUPER/ R(21,60)
      COMMON /SPOR/ S(60),SO(60),SOP(60),SI(60),SIP(60),AREA(60)
      COMMON /NERD/ MF,NF,NT,MUFF,LIMIT
      COMMON /EROS/ W(21,60,4),P(21,60)
      DATA ZERO/0.0/,ONE/1.0/
      COMMON /FRAN/ AO(60),AI(60),BO(60),BI(60)
      DIMENSION PP(100)
C
C     COMPUTE OUTER BOUNDARY PRESSURES
      DO 1 K=1,60
    1 PP(K)=P(MF,K)
C
      DO 2 K=2,LIMIT
      X=W(MF,K,2)**2/W(MF,K,1)
      X=X/SO(K)
      DP=0.5*(PP(K+1)-PP(K-1))
      CORR=BO(K)*DP-AO(K)*X
      P(MF,K)=P(MF-1,K)+CORR
    2 CONTINUE
      DO 3 K=2,LIMIT
      SOPK=SOP(K)
      DINGLE=ONE+SOPK**2
      DANGLE=SQRTF(ONE/DINGLE)
      CALL GRONK (ONE,P(MF,K),RHO,VEL,EASY)
      W(MF,K,1)=RHO*R(MF,K)
      W(MF,K,2)=RHO*R(MF,K)*VEL*DANGLE
      W(MF,K,3)=W(MF,K,2)*SOPK
    3 W(MF,K,4)=EASY*R(MF,K)
      DO 4 K=1,60
    4 PP(K)=P(1,K)
      DO 5 K=2,LIMIT
      X=W(1,K,2)**2/W(1,K,1)
      X=X/SI(K)
      DP=0.5*(PP(K+1)-PP(K-1))
      CORR=BI(K)*DP-AI(K)*X
    5 P(1,K)=P(2,K)+CORR
```

```
C
      DO 6 K=2,LIMIT
      SIPK=SIP(K)
      DINGLE=ONE+SIPK**2
      DANGLE=SQRTF(ONE/DINGLE)
      CALL GRONK (ZERO,P(1,K),RHO,VEL,EASY)
      W(1,K,1)=RHO*R(1,K)
      W(1,K,2)=RHO*R(1,K)*VEL*DANGLE
      W(1,K,3)=W(1,K,2)*SIPK
6     W(1,K,4)=EASY*R(1,K)
C
      RETURN
      END
      SUBROUTINE BOMBER (NAME,KODE)
      DIMENSION NAME(2)
      WRITE (6,1) NAME(1),NAME(2),KODE
      CALL ENDJOB
      CALL EXIT
      RETURN
C
1     FORMAT (/20X,'BOMB-OUT IN ',2A4,3X,'CODE=',I5/)
      END
      SUBROUTINE CARDIN
      COMMON /SPY/ KCLASS,KGROUP
      DIMENSION KARD(20)
      CALL DEMON
      READ (5,3) KCLASS,KGROUP
      WRITE (6,8) KCLASS,KGROUP
      CALL PCLASS
      DO 2 K=1,6969
      READ (5,4,END=9) KARD
      IF (MOD(K-1,50).NE.0) GO TO 1
      CALL PCL6
      WRITE (6,7)
1     WRITE (6,5) KARD,K
2     CONTINUE
    9 REWIND 5
      WRITE (6,6)
      RETURN
C
3     FORMAT (16I5)
4     FORMAT (20A4)
5     FORMAT (10X,20A4,3X,I5)
6     FORMAT (2X,50('*'),' END OF INPUT DATA ',50('*') )
7     FORMAT (18X,'  INPUT DATA CARD IMAGE   PROGRAM NO. SER00142' / )
8     FORMAT (/20X,'SECURITY CLASS AND GROUP  CLASS=',I5,'  GROUP=',I5/)
      END
      SUBROUTINE CDVD (CLAP,VENUS,PUNTZ,NASTY)
      COMMON /EROS/ W(21,60,4),P(21,60)
      COMMON /DELTAS/ DX,DY,DT
      COMMON /NERD/ M,N,NT,MUFF
      COMMON /SPOR/ S(60)
      COMMON /SUPER/ R(21,60)
      NX=NASTY
      CD=(W(M,NX,2)+W(1,NX,2))*0.5
      VD=(W(M,NX,2)**2/W(M,NX,1)+W(1,NX,2)**2/W(1,NX,1))*0.5
```

```
      PUNE=(P(M,NX)*R(M,NX)+P(1,NX)*R(1,NX))*0.5
      DO 1 K=2,MUFF
      CD=CD+W(K,NX,2)
      VD=VD+W(K,NX,2)**2/W(K,NX,1)
    1 PUNE=PUNE+P(K,NX)*R(K,NX)
      SEX=S(NX)*DY*2.0
      CLAP=SEX*CD
      VENUS=SEX*VD
      PUNTZ=PUNE*SEX
      RETURN
      END
      SUBROUTINE CIPORT (PO,TO,DEN,FUZZ,PSTAT,TEMP,VEL,EASY)
      COMMON /LIMITS/ VMIN
      COMMON /THERMO/ CPX(3),CVX(3),RAG
    1 CONTINUE
      ZERO=0.0
      PZ=PO
      TZ=TO
      RHO=DEN
      F=FUZZ
      RRATIO=RHO*RAG*TZ/PZ
      AZ=CVX(1)
      A1=CVX(2)
      A2=CVX(3)
      X=RRATIO
      RGAS=RAG
      POWER=RGAS/AZ
      FUDGE=X**POWER
      BARF=A1/AZ
      TRAF=A2*0.5/AZ
      T=TZ
      DO 2 K=1,5
      TTZ=T/TZ
      EPAR=(TZ-T)*(BARF+(TZ+T)*TRAF)
      XLAX=EXP(EPAR)
      TRAT=XLAX*FUDGE
      TCOMP=TRAT*TZ
      ERROR=TCOMP-T
      T=TCOMP
    2 CONTINUE
      PRES=T*RHO*RAG
      DH=HOTS(CPX,T,TZ)
      VELOC=SQRTF(DH+DH)
      VELOC=AMAX1(VELOC,VMIN)
      HO=HZERO(F)
      E=HO*RHO-PRES
      PSTAT=PRES
      VEL=VELOC
      EASY=E
      TEMP=T
      RETURN
      END
      SUBROUTINE CPEVAL
      COMMON /CPDATA/ CP(3,8),WTM(8),NAME(8)
      DATA KRUD/'PERF'/
      DIMENSION X(8), Y(8)
```

```
      INTEGER*4  LBMASS(4)/'CP(B','TU/L','BMAS','S-R)'/
     *          , LBMOLE(4)/'CP(B','TU/L','BMOL','E-R)'/
     *          , KGAMMA(4)/'CP/C','V GA','MMA ','    '/
      READ (5,10) NOMEN,ADDA
      IF (NOMEN.NE.KRUD) GO TO 3
      DO 2 J=1,8
      DO 1 K=2,3
1     CP(K,J)=-0.0
2     CONTINUE
      CP(1,1)=0.24009
3     CONTINUE
      NCP=19
      R=1.98726
      CALL HEAD6
      WRITE (6,11)
      WRITE (6,12) (K,NAME(K),WTM(K),(CP(J,K),J=1,3),K=1,8)
      WRITE (6,14) NAME,LBMASS
      DO 5 J=1,NCP
      A=J-1
      A=A+ADDA
      T=A*100.0
      DO 4 K=1,8
      X(K)=CP(1,K)+T*(CP(2,K)+CP(3,K)*T)
4     CONTINUE
      WRITE (6,13) T,X,T
      IF (MOD(J,5).EQ.0) WRITE (6,16)
5     CONTINUE
      WRITE (6,15)
      WRITE (6,14) NAME,LBMOLE
      DO 7 J=1,NCP
      A=J-1
      A=A+ADDA
      T=A*100.0
      DO 6 K=1,8
      X(K)=CP(1,K)+T*(CP(2,K)+CP(3,K)*T)
      X(K)=X(K)*WTM(K)
6     CONTINUE
      WRITE (6,13) T,X,T
      IF (MOD(J,5).EQ.0) WRITE (6,16)
7     CONTINUE
      WRITE (6,14) NAME,KGAMMA
      DO 9 J=1,NCP
      A=J-1
      A=A+ADDA
      T=A*100.0
      DO 8 K=1,8
      X(K)=CP(1,K)+T*(CP(2,K)+CP(3,K)*T)
      X(K)=X(K)*WTM(K)
      FUZZ=X(K)-R
      Y(K)=X(K)/FUZZ
8     CONTINUE
      WRITE (6,13) T,Y,T
      IF (MOD(J,5).EQ.0) WRITE (6,16)
9     CONTINUE
      RETURN
C
```

```
   10 FORMAT  (A4,E16.0)
   11 FORMAT  (' ',20X,'CP DATA' //20X,'COEFFICIENTS FOR CP(BTU/LB.MASS)
     1= F(T-RANKINE)' //23X,'MOL. WT.',5X,'A0',10X,'A1*T',13X,'A2*T**2')
   12 FORMAT (/10X,I5,2X,A4,0PF10.3,1P3G15.6)
   13 FORMAT  (10X,F8.1,5X,8F9.4,2X,F8.1)
   14 FORMAT  (/12X,'RANKINE',8X,8(A4,5X),2X,4A4/ )
   15 FORMAT  ('1')
   16 FORMAT  (' ')
      END
      FUNCTION CSUBP (TEMP)
      COMMON /THERMO/ CP(3),CV(3)
      T=TEMP
      C=CP(1)+T*(CP(2)+CP(3)*T)
      CSUBP=C
      RETURN
      ENTRY CSUBV(TEMP)
      T=TEMP
      C=CV(1)+T*(CV(2)+CV(3)*T)
      CSUBV=C
      RETURN
      END
      SUBROUTINE CYCLE
      COMMON /DELTAS/ DX,DY,DT,DY2,DT2,DT4
      COMMON /DUPER/ HA(21),HB(21)
      COMMON /EROS/ W(21,60,4),P(21,60)
      COMMON /FANG/ F(9,4),G(9,4)
      COMMON /FURD/ WNORTH(4),WSOUTH(4),WWEST(4),WEAST(4)
      COMMON /NAVIER/ DTDX,DTDX2,DTDX4,DTDX8,DTDY,DTDY2,DTDY4,DTDY8
      COMMON /NERD/ MF,NF,NT,MUFF,LIMIT
      COMMON /STOKES/ A(60),B(60),H(60)
      COMMON /STUPID/ FUZZ(21,60)
      DO 4 M=2,MUFF
      Y=HB(M)
      DO 3 N=2,LIMIT
      HN=H(N)
      EAST=A(N+1)*Y+B(N+1)
      WEST=A(N-1)*Y+B(N-1)
      ANYB=A(N)*Y+B(N)
      FUDGE=A(N)*DY2
      YANKEE=ANYB+FUDGE
      REBEL=ANYB-FUDGE
      CALL SNAFU (M,N)
      DO 1 K=1,4
      F64=F(6,K)-F(4,K)
      GB2=(G(8,K)-G(2,K))*HN
      FB2=(F(8,K)-F(2,K))*ANYB
      WBAR=(W(M,N,K)+W(M+1,N,K))*0.5
      FX=(F64+F(9,K)-F(7,K))*DTDX8
      FY=(F(8,K)-F(5,K))*YANKEE
      GY=(G(8,K)-G(5,K))*HN
      WNORTH(K)=WBAR+FX+GY-FY
      WBAR=(W(M,N,K)+W(M-1,N,K))*0.5
      FX=(F64+F(3,K)-F(1,K))*DTDX8
      FY=(F(5,K)-F(2,K))*REBEL
      GY=(G(5,K)-G(2,K))*HN
      WSOUTH(K)=WBAR+FX+GY-FY
```

```
      WBAR=(W(M,N+1,K)+W(M,N,K))*0.5
      FX=(F(6,K)-F(5,K))*DTDX2
      FY=(F(9,K)-F(3,K))*EAST
      GY=(G(9,K)-G(3,K))*H(N+1)
      WEAST(K)=WBAR+FX+(GY+GA2-FY-FA2)*0,25
      WBAR=(W(M,N-1,K)+W(M,N,K))*0.5
      FX=(F(5,K)-F(4,K))*DTDX2
      FY=(F(7,K)-F(1,K))*WEST
      GY=(G(7,K)-G(1,K))*H(N-1)
1     WWEST(K)=WBAR+FX+(GY+GA2-FY-FA2)*0.25
      WNORTH(3)=WNORTH(3)+DT4*(P(M,N)+P(M+1,N))
      WSOUTH(3)=WSOUTH(3)+DT4*(P(M,N)+P(M-1,N))
      WEAST(3)=WEAST(3)+DT4*(P(M,N)+P(M,N+1))
      WWEST(3)=WWEST(3)+DT4*(P(M,N)+P(M,N-1))
      CALL EVAL (WNORTH,2,(FUZZ(M,N)+FUZZ(M+1,N))*0.5)
      CALL EVAL (WSOUTH,1,(FUZZ(M,N)+FUZZ(M-1,N))*0.5)
      CALL EVAL (WEAST,4,(FUZZ(M,N)+FUZZ(M,N+1))*0.5)
      CALL EVAL (WWEST,3,(FUZZ(M,N)+FUZZ(M,N-1))*0.5)
      DO 2 K=1,4
      FX=(F(4,K)-F(3,K))*DTDX
      FY=(F(2,K)-F(1,K))*ANYB
      GY=(G(2,K)-G(1,K))*HN
2     W(M-1,N-1,K)=W(M,N,K)+FX+2.0*(GY-FY)
      W(M-1,N-1,3)=W(M-1,N-1,3)+P(M,N)*DT
3     CONTINUE
4     CONTINUE
      CALL WEIRDO
      RETURN
      END
      SUBROUTINE DEMON
      IMPLICIT REAL*8(A-H,O-Z)
      COMMON /APE/ D(10),ARONUM,WEEKDY,KDATE(3)
      REAL*8  TWTFS(7)
     * /' TUESDAY',' WEDNSDY',' THURSDY',' FRIDAY '
     * ,' SATURDY',' SUNDAY ',' MONDAY ' /
      INTEGER  MONTH(13)/ ' JAN',' FEB',' MAR',' APR',' MAY',' JUN'
     *, ' JUL',' AUG',' SEP',' OCT',' NOV',' DEC'/
      INTEGER JERK(12)/31,28,31,30,31,30,31,31,30,31,30,31/
      INTEGER  LUSH/'1900'/ , LULU/' 00,'/
      CALL GETWHO (ARONUM,KYEAR)
      KDAY=MOD(KYEAR,1000)
      KYEAR=KYEAR/1000
      IF(MOD(KYEAR,4) .EQ. 0)  JERK(2)=29
      L = KYEAR - 69
      J = L/4 + L + KDAY
      L = MOD(J,7) + 1
      WEEKDY=TWTFS(L)
      K=KDAY
      DO 1 J=1,12
      M=J
      IF (K.LE.JERK(J)) GO TO 2
1     K=K-JERK(J)
      K=0
      M=13
2     MUNTH=MONTH(M)
      KDATE(1)=MUNTH
```

```
      KDATE(2)=LULU+256*((K/10)*256+MOD(K,10))
      KDATE(3) = LUSH + 256*(KYEAR/10) + MOD(KYEAR,10)
      RETURN
      END
      SUBROUTINE DOODLE
      COMMON /EROS/ W(21,60,4),P(21,60)
      COMMON /NERD/ MF,NF,NT,MUFF,LIMIT
      COMMON /STUPID/ F(21,60)
      COMMON /SUPER/ R(21,60)
      DATA ZERO/0.0/,ONE/1.0/,BIGGY/0.01/,SMALL/-0.01/,HUGE/1.0E+23/
      XMASNT=XMASS(NT)
      DO 2 J=2,NF
      JAY=J
      IF (JAY.EQ.NT) GO TO 2
      XMASJ=XMASS(JAY)
      ERR=XMASNT-XMASJ
      REL=ERR/XMASNT
      DO 1 K=1,MF
      KAY=K
      FACTER=RIDDLE(KAY,JAY)
      IF (FACTER.EQ.ZERO) FACTER=HUGE
      PAR=REL/FACTER
      EPAR=PAR
      IF (EPAR.GT.BIGGY) EPAR=BIGGY
      IF (SMALL.GT.EPAR) EPAR=SMALL
      G=EPAR+ONE
      RHO=W(K,J,1)
      W(K,J,1)=RHO*G
    1 CONTINUE
    2 CONTINUE
      CALL ROGUE
      DO 4 K=1,MF
      DO 3 J=2,NF
      FUZZ=F(K,J)
      RHO=W(K,J,1)
      RMAX=0.995*RHOMAX(FUZZ)
      RHO=DUMDUM(RHO,RMAX)
      CALL FONKY (FUZZ,RHO,PSTAT,VEL,EASY,T)
      TANG=W(K,J,3)/W(K,J,2)
      COSN=ONE/SQRTF(ONE+TANG**2)
      W(K,J,1)=RHO*R(K,J)
      W(K,J,2)=W(K,J,1)*VEL*COSN
      W(K,J,3)=W(K,J,2)*TANG
      W(K,J,4)=EASY*R(K,J)
    3 P(K,J)=PSTAT
    4 CONTINUE
      RETURN
      END
      SUBROUTINE DOWN
      COMMON /EROS/ W(21,60,4),P(21,60)
      COMMON /NERD/ MF,NF,NT,MUFF,LIMIT
      DO 1 K=1,MF
      W(K,NF,1)=W(K,NF-1,1)+0.5*(W(K,NF,1)-W(K,NF-2,1))
    1 W(K,NF,2)=W(K,NF-1,2)+0.5*(W(K,NF,2)-W(K,NF-2,2))
      RETURN
      END
```

```
      SUBROUTINE ENDJOB
      CALL HEAD6
      CALL HEAD8
      CALL HEAD14
      WRITE (6,1)
      WRITE (8,2)
      WRITE (14,3)
      WRITE (14,4)
      WRITE (14,4)
      CALL ENDPLT
      RETURN
C
1     FORMAT  ('2',40('*'),' END OF DATA SET 6 ',40('*') )
2     FORMAT  ('2',40('*'),' END OF DATA SET 8 ',40('*') )
3     FORMAT  ('2',40('*'),' END OF DATA SET 14 ',40('*') )
4     FORMAT
     1(30X' *****  *   *  ***     *****  *****      *  *****  ****  ' /
     2 30X' *      **  *  *  *    *    *  *         *  *   *  *    * ' /
     3 30X' ***    * * *  *  *    *    *  ***       *  *   *  ****  ' /
     4 30X' *      *  **  *  *    *    *  *      *  *  *   *  *    * ' /
     5 30X' *****  *   *  ***     *****  *      ***   *****  ****  ' )
      END
      SUBROUTINE ENIGMA
      COMMON /EROS/ W(21,60,4),P(21,60)
      COMMON /COUNT/ L,LL
      COMMON /NERD/ MF,NF,NT
      COMMON /NITWIT/ CLOWN,VULGAR
      CALL HEAD6
      WRITE (6,6) L
      WRITE (6,3)
      WRITE (6,5)
      CALL COVD (CDT,VDT,PUNTZ,NT)
      IF (L.NE.0) GO TO 1
      CLOWN=CDT
      VULGAR=VDT
1     DO 2 K=1,NF
      CALL COVD (A,B,PUNTZ,K)
      AX=A/CDT
      AXX=A/CLOWN
      BX=B/VDT
      BXX=B/VULGAR
      SUM=PUNTZ+B
      THRUST=SUM*3.141593
      WF=A*3.141593*32.174
      WRITE (6,4) WF,AX,AXX,B,BX,BXX,PUNTZ,THRUST,K
      IF (K.EQ.NT) WRITE (6,7)
2     CONTINUE
      RETURN
C
3     FORMAT  (/20X,'DISCHARGE(CD),THRUST(VD),AND PRESSURE(PO) COEFFICIE
     1NTS' /)
4     FORMAT  (10X,1PG14.5,0PF10.5,4X,F10.5,4X,1P5G14.5,1X,I2)
5     FORMAT  (/16X,'WF',11X,'WF/WF*',6X,'WF/WF1',9X,'VD',11X,'VD/VD*',7
     1X,'VD/VD-1',9X,'PD',11X'THRUST(LBF)'/)
6     FORMAT (/20X,'ITERATION NO.=',I5/)
7     FORMAT  ('+',5X,'THROAT')
```

```
      END
      SUBROUTINE EQUATE (K,J,NERD)
      DIMENSION K(1), J(1)
      N=NERD
      DO 1 L=1,N
    1 K(L)=J(L)
      RETURN
      END
      SUBROUTINE EVAL (A,ISW,ATE)
      COMMON /FANG/ F(9,4),G(9,4)
      DIMENSION A(4)
      ZERO=0.0
      ETA=ATE
      IF (A(1).NE.ZERO) GO TO 1
      Z2=ZERO
      Z3=ZERO
      PR=ZERO
      GO TO 2
    1 CONTINUE
      Z2=A(2)/A(1)
      Z3=A(3)/A(1)
      HO=HZERO(ETA)
      PR=HO*A(1)-A(4)
    2 CONTINUE
      F(ISW,1)=-A(2)
      F(ISW,2)=-(Z2*A(2)+PR)
      F(ISW,3)=-Z2*A(3)
      F(ISW,4)=-(Z2*(A(4)+PR))
      G(ISW,1)=-A(3)
      G(ISW,2)=F(ISW,3)
      G(ISW,3)=-(Z3*A(3)+PR)
      G(ISW,4)=-(Z3*(A(4)+PR))
      RETURN
      END
      SUBROUTINE FIASCO
      COMMON /DUPER/ HA(21),HB(21)
      COMMON /EROS/ W(21,60,4),P(1260)
      COMMON /NERD/ MF,NF,NT,MUFF,NEWKY
      COMMON /SPOR/ S(60),SO(60),SOP(60),SI(60),SIP(60),AREA(60)
      COMMON /SEXX/ NASTIE,IDIOT
      DIMENSION X(21)
      IF (NASTIE.EQ.0) RETURN
      ZERO=0.0
      NX=MF
      DO 3 J=1,NASTIE
      DO 1 K=2,MUFF
    1 X(K)=W(K,J,3)/W(K,J,2)
      X(1)=SIP(J)
      X(MF)=SOP(J)
      CALL SMOOTH (X,MF,2)
      DO 2 K=2,MUFF
      TN=X(K)
      RWR=SQRTF(W(K,J,2)**2+W(K,J,3)**2)
      TESTA=X(1)
      TESTB=X(NX)
      IF ((TN-TESTA)*(TESTA-TESTB).GE.ZERO) TN=TESTA
```

```
      IF ((TN-TESTB)*(TESTB-TESTA).GE.ZERO) TN=TESTB
      CN=SQRTF(1.0/(TN**2+1.0))
      SN=CN*TN
      W(K,J,3)=SN*RWR
2     W(K,J,2)=CN*RWR
3     CONTINUE
      PVSSY = P(1)
      DO 4 K=1,1260
4     P(K)=AMIN1(P(K),PVSSY)
      IF (IDIOT.NE.0) CALL SAM
      RETURN
      END
      SUBROUTINE FIRST
      COMMON /ABLE/ AX(21)
      COMMON /FLIGNR/ WEIGHT,PTHROT,PANIC
      COMMON /NERO/ MF,NF,NT
      ONE=1.0
      ZERO=0.0
      XLOW=PTHROT
      XHIG=PANIC
      TARGET=XMASS(NT)
      DO 3 KOUNT=1,20
      X=(XHIG+XLOW)*0.5
      DO 1 K=1,MF
      PRESS=X*AX(K)
1     CALL PUNTZ (K,1,PRESS)
      TEST=TARGET-XMASS(1)
      IF (TEST.GT.ZERO) GO TO 2
      XLOW=X
      GO TO 3
2     XHIG=X
3     CONTINUE
      RETURN
      END
      SUBROUTINE FONKY (FUZZ,RHO,PSTAT,VEL,EASY,TEMP)
      COMMON /STAG/ A(8,21),CP(3,21),CV(3,21),WTM(21),GAMZ(21),RGAS(21),
     1PZ(21),TZ(21),HZ(21)
      COMMON /THERMO/ CPX(3),CVX(3),RAG
1     CONTINUE
      ONE=1.0
      ZERO=0.0
      F=FUZZ
      D=RHO
      IF (F.EQ.ZERO) GO TO 3
      IF (F.EQ.ONE) GO TO 5
      IF (F*(ONE-F).LE.ZERO) CALL BOMBER ('FONKY',1)
      X=F*20.0
      NEWKY=X
      DIGIT=NEWKY
      F2=X-DIGIT
      F1=ONE-F2
      J=NEWKY+1
      K=J+1
      PO=F1*PZ(J)+F2*PZ(K)
      TO=F1*TZ(J)+F2*TZ(K)
      DO 2 L=1,3
```

```
      CPX(L)=F1*CP(L,J)+F2*CP(L,K)
      CVX(L)=F1*CV(L,J)+F2*CV(L,K)
    2 CONTINUE
      RAG=F1*RGAS(J)+F2*RGAS(K)
      GO TO 7
    3 CONTINUE
      PO=PZ(1)
      TO=TZ(1)
      DO 4 L=1,3
      CPX(L)=CP(L,1)
      CVX(L)=CV(L,1)
    4 CONTINUE
      RAG=RGAS(1)
      GO TO 7
    5 CONTINUE
      PO=PZ(21)
      TO=TZ(21)
      DO 6 L=1,3
      CPX(L)=CP(L,21)
      CVX(L)=CV(L,21)
    6 CONTINUE
      RAG=RGAS(21)
      GO TO 7
    7 CONTINUE
      CALL CIPORT (PO,TO,D,F,PRES,TRANK,VELOC,E)
      PSTAT=PRES
      TEMP=TRANK
      EASY=E
      VEL=VELOC
      RETURN
      END
      SUBROUTINE FREAK (PRES,RHO,UU,VV,MY,NX,PO,TO,DEG,T,XM,VEL,GAM)
      COMMON /COUNT/ L,LL
      COMMON /NERD/ MF,NF,NT
      COMMON /STUPID/ FZ(21,60)
      COMMON /THERMO/ CPX(3),CVX(3),RAG
      COMMON /STAG/ A(8,21),CP(3,21),CV(3,21),WTM(21),GAMZ(21),RGAS(21)
      DATA ONE/1.0/
      P=PRES
      R=RHO
      U=UU
      V=VV
      M=MY
      N=NX
      Q=V**2+U**2
      X=FZ(M,N)
      Y=X*20.0+1.0
      N=Y
      IF (X*(ONE-X)) 6,4,1
    1 X=N
      F2=Y-X
      F1=ONE-F2
      RAG=F1*RGAS(N)+F2*RGAS(N+1)
      DO 2 K=1,3
      CPX(K)=F1*CP(K,N)+F2*CP(K,N+1)
    2 CVX(K)=F1*CV(K,N)+F2*CV(K,N+1)
```

```
C
 3    CONTINUE
      TEMP=P/(R*RAG)
      TZ=TSTAG(CPX,TEMP,Q)
      PZ=PSTAG(CPX,TEMP,TZ,P,RAG)
      TANG=V/U
      RAD=ATANF(TANG)
      DEGREE=RAD*57.29578
      SEX=CSUBP(TEMP)
      HEX=CSUBV(TEMP)
      GAMMA=SEX/HEX
      SONIC=SQRTF(GAMMA*RAG*TEMP)
      VELOC=SQRTF(Q)
      XMACH=VELOC/SONIC
      PO=PZ
      TO=TZ
      DEG=DEGREE
      T=TEMP
      XM=XMACH
      VEL=VELOC
      GAM=GAMMA
      RETURN
 4    RAG=RGAS(N)
      DO 5 K=1,3
      CPX(K)=CP(K,N)
 5    CVX(K)=CV(K,N)
      GO TO 3
C
 6    K=M*1000+N
      CALL BOMBER ('FREAK-FZ',K)
      RETURN
C
      END
      SUBROUTINE FRITO
      COMMON /FUBAR/ F1,F2,F3,F4,F5
      READ (5,1) K1,K2,K3,K4,K5
      WRITE (6,2) K1,K2,K3,K4,K5
      ZERO=0.0
      F1=K1
      F2=K2
      F3=K3
      F4=K4
      F5=K5
      SUM=F1+F2+F3+F4+F5
      IF (SUM.EQ.ZERO) CALL BOMBER ('FRITO',1)
      WRITE (6,3) F1,F2,F3,F4,F5,SUM
      F1=F1/SUM
      F2=F2/SUM
      F3=F3/SUM
      F4=F4/SUM
      F5=F5/SUM
      WRITE (6,3) F1,F2,F3,F4,F5
      RETURN
C
 1    FORMAT   (16I5)
 2    FORMAT   (/20X,'INTERPOLATION FACTORS'//20X,5I5 )
```

```
3     FORMAT  (/20X,1P6G15.6)
      END
      SUBROUTINE FUBARA
      COMMON /FUBAR/ F1,F2,F3,F4,F5
      A1=F1
      A2=F2
      A3=F3
      A4=F4
      A5=F5
      F1=0.0
      F2=0.0
      F3=0.0
      F4=1.0
      F5=0.0
      RETURN
      ENTRY FUBARB
      F1=A1
      F2=A2
      F3=A3
      F4=A4
      F5=A5
      RETURN
      END
      SUBROUTINE GRAFF
      COMMON /SPOR/ S(60),SD(60),SDP(60),SI(60),SIP(60),AREA(60)
      COMMON /EROS/ W(100),Q(100)
      COMMON /NERD/ MF,NF,NT,MUFF,LIMIT,NASTY
      COMMON /DELTAS/ DX
      COMMON /WALL/ XWALL(100)
      DO 1 K=1,NF
      W(K)=K
      XWALL(K)=W(K)
      Q(K)=SD(K)
1     Q(K+NF)=SI(K)
      CALL FARGX (W,NF)
      CALL FARGY (Q,NF+NF)
      RETURN
      END
      SUBROUTINE GRAPH
      COMMON /APE/ KITLE,LABEL(19),NASTY(7)
      COMMON /SKALE/ XZ,YZ,SX,SY
      COMMON /TYME/ T,FLIT
      DIMENSION X(1), Y(1)
      DATA BIG/-0.0/,HT/0.14/,HH/0.10/,W/90.0/,Z/0.0/,DUDE/20.0/,XWIDE/1
     16.0/,YHIGH/10.0/,KS/1/
C
C     ----------------------
C
      CALL CLASS ('SER00142')
      CALL CALCMP (0.5,0.5,0,3)
      BIG=-0.0
      RETURN
C
C     ----------------------
C
      ENTRY FARGX(X,NPTS)
```

```
      N=NPTS
      CALL SCALE (X,XWIDE,N,KS,DUDE)
      JUNK=N*KS+1
      KRUD=JUNK+KS
      XZ=X(JUNK)
      SX=X(KRUD)
      CALL HEAD6
      WRITE (6,1) XZ,SX,(X(J),J=1,N)
      RETURN
C
C     --------------------
C
      ENTRY FARGY(Y,NPTS)
      N=NPTS
      CALL SCALE (Y,YHIGH,N,KS,DUDE)
      JUNK=N*KS+1
      KRUD=JUNK+KS
      SY=Y(KRUD)
      YZ=Y(JUNK)
      WRITE (6,2) YZ,SY,(J,Y(J),J=1,N)
      RETURN
C
C     --------------------
C
      ENTRY NEWPLT
      CALL SYMBOL (0.25,10.3,HH,NASTY,Z,8)
      CALL SYMBOL (0.25,10.1,HH,NASTY(3),Z,20)
      CALL AXIS (Z,Z,'X',-1,XWIDE,Z,XZ,SX,DUDE)
      CALL AXIS (Z,Z,'Y',+1,YHIGH,N,YZ,SY,DUDE)
      CALL SYMBOL (2.0,10.1,HT,LABEL,Z,76)
      CALL SYMBOL (BIG,BIG,HT,'ITERATION NO.=',Z,14)
      CALL NUMBER (BIG,BIG,HT,FLIT,Z,-1)
      CALL SYMBOL (BIG,BIG,HT,'-TIME=',Z,6)
      XXXT=T*1000.0
      CALL NUMBER (BIG,BIG,HT,XXXT,Z,2)
      CALL SYMBOL (BIG,BIG,HT,'  MILLISEXS',Z,11)
      RETURN
C
C     --------------------
C
      ENTRY LION(X,Y,NPTS,KSYM)
      K=KSYM
      N=NPTS
      JUNK=N*KS+1
      X(JUNK)=XZ
      Y(JUNK)=YZ
      KRUD=JUNK+KS
      X(KRUD)=SX
      Y(KRUD)=SY
      CALL LINE (X,Y,N,KS,-1,K)
      RETURN
C
C     --------------------
C
      ENTRY LOON(X,Y,NPTS)
      N=NPTS
```

```
      JUNK=N*KS+1
      KRUD=JUNK+KS
      X(KRUD)=SX
      Y(KRUD)=SY
      Y(JUNK)=YZ
      X(JUNK)=XZ
      CALL LINE (X,Y,N,KS,0,0)
      RETURN
C
C     ---------------------
C
      ENTRY NEXTP
      CALL CALCMP (Z,Z,Z,2)
      RETURN
C
C     ---------------------
C
      ENTRY ENDPLT
      CALL CLASS ('SER00142')
      RETURN
C
C
C
 1    FORMAT  ('0',20X,'X-PLOT PARAMETERS  X-ZERO =',1PG15.6,5X,'UNITS/I
     1NCH =',G15.6//(20X,1P6G15.6/))
 2    FORMAT  ('0',20X,'Y-PLOT PARAMETERS  Y-ZERO =',1PG15.6,5X,'UNITS/I
     1NCH =',G15.6//10(10X,5(I5,0PF10.4)/) )
      END
      SUBROUTINE GRONK (FUZZ,PP,RHO,VEL,EASY)
      COMMON /STAG/ A(8,21),CP(3,21),CV(3,21),WTM(21),GAMZ(21),RGAS(21),
     1PZ(21),TZ(21)
      COMMON /THERMO/ CPX(3),CVX(3),RAG
      F=FUZZ
      P=PP
      ONE=1.0
      ZERO=0.0
      IF (F.EQ.ZERO) GO TO 2
      IF (F.EQ.ONE) GO TO 4
      IF (F*(ONE-F).LE.ZERO) CALL BOMBER ('GRONK',1)
      X=F*20.0
      NEWKY=X
      DIGIT=NEWKY
      F2=X-DIGIT
      F1=ONE-F2
      J=NEWKY+1
      K=J+1
      PO=F1*PZ(J)+F2*PZ(K)
      TO=F1*TZ(J)+F2*TZ(K)
      DO 1 L=1,3
      CPX(L)=F1*CP(L,J)+F2*CP(L,K)
      CVX(L)=F1*CV(L,J)+F2*CV(L,K)
 1    CONTINUE
      RAG=F1*RGAS(J)+F2*RGAS(K)
      GO TO 6
 2    CONTINUE
      PO=PZ(1)
```

```
      TO=TZ(1)
      DO 3 L=1,3
      CPX(L)=CP(L,1)
      CVX(L)=CV(L,1)
    3 CONTINUE
      RAG=RGAS(1)
      GO TO 6
    4 CONTINUE
      PO=PZ(21)
      TO=TZ(21)
      DO 5 L=1,3
      CPX(L)=CP(L,21)
      CVX(L)=CV(L,21)
    5 CONTINUE
      RAG=RGAS(21)
      GO TO 6
    6 CONTINUE
      CALL TROPIC (PO,TO,P,F,DEN,VELOC,E)
      RHO=DEN
      VEL=VELOC
      EASY=E
      RETURN
      END
      FUNCTION HANKY (A,PANKY,TO,SAGR)
      DIMENSION A(1)
      AZ=A(1)
      A1=A(2)
      A2=A(3)
      X=PANKY
      TZ=TO
      RGAS=SAGR
      POWER=RGAS/AZ
      FUDGE=X**POWER
      BARF=A1/AZ
      TRAF=A2*0.5/AZ
      T=TZ
      DO 1 K=1,5
      TTZ=T/TZ
      EPAR=(TZ-T)*(BARF+(TZ+T)*TRAF)
      XLAX=EXP(EPAR)
      TRAT=XLAX*FUDGE
      TCOMP=TRAT*TZ
      ERROR=TCOMP-T
      T=TCOMP
    1 CONTINUE
      HANKY=T
      RETURN
      END
      SUBROUTINE HORNY
      COMMON /NERO/ M,N,NT,MUFF/STUPID/F(21,60)/SUPER/R(21,60)
      COMMON /SPOR/ S(60),SO(60),SDP(60),ST(60),SIP(60),AREA(60)
      CALL OREZ (F,1260)
      CALL HEAD6
      DO 2 J=1,N
      F(M,J)=1.0
      ROGER=1.0/AREA(J)
```

```
      DO 1 K=2,MUFF
    1 F(K,J)=(R(K,J)+R(1,J))*(R(K,J)-R(1,J))*ROGER
      WRITE (6,3) J,(F(K,J),K=1,M)
    2 CONTINUE
      RETURN
C
    3 FORMAT  (10X,I5,2X,11F10.4/17X,10F10.4/)
      END
      FUNCTION HOTS (CP,TSTAT,TZERO)
      DIMENSION CP(1)
      A=CP(1)
      B=CP(2)*0.5
      C=CP(3)*0.3333333
      Y=TSTAT
      X=TZERO
      H=(X-Y)*(A+B*(X+Y)+C*(X**2+X*Y+Y**2))
      HOTS=H
      RETURN
      END
      SUBROUTINE HUNT
      COMMON /SPOR/ S(60),SO(60),SOP(60),SI(60),SIP(60),AREA(60)
      COMMON /NERD/ MF,NF,NT
      DO 1 K=1,NF
      S(K)=SO(K)-SI(K)
    1 AREA(K)=S(K)*(SO(K)+SI(K))
      LITTLE=1
      SMALL=AREA(1)
      DO 2 K=2,NF
      IF (SMALL.LE.AREA(K)) GO TO 2
      SMALL=AREA(K)
      LITTLE=K
    2 CONTINUE
      AGONY=SQRTF(SMALL)
      CALL HEAD6
      WRITE (6,4) LITTLE,SMALL,AGONY
      WRITE (6,5)
      DO 3 K=1,NF
      AGONY=AREA(K)/SMALL
      SNAFU=SQRTF(AGONY)
      WRITE (6,6) K,AREA(K),AGONY,SNAFU
    3 CONTINUE
      NT=LITTLE
      RETURN
C
C
    4 FORMAT  (/20X,'MIN X-STA =',I4,3X,'MIN AREA=',F9.4,3X,' EFFECTIVE
     1RADIUS =',F10.4 / )
    5 FORMAT  (/33X,'AREA',12X,'A/A*',11X,'R/R*' / )
    6 FORMAT  (20X,I5,3F15.4)
      END
      FUNCTION HZERO (ETA)
      COMMON /STAG/ A(8,21),CP(3,21),CV(3,21),WTM(21),GAMZ(21),RGAS(21),
     1PZ(21),TZ(21),HZ(21)
      ONE=1.0
      ZERO=0.0
      HZERO=HZ(21)
```

```
      X=ETA                                                          AF   7
      IF (X.EQ.ONE) RETURN                                           AF   8
      IF (X.LT.ZERO) CALL BOMBER ('HZERO',1)                         AF   9
      IF (X.GT.ONE) CALL BOMBER ('HZERO',2)                          AF  10
      X=X*20.0                                                       AF  11
      N=X                                                            AF  12
      R=N                                                            AF  13
      R=X-R                                                          AF  14
      F2=R                                                           AF  15
      F1=ONE-F2                                                      AF  16
      HOHO=HZ(N+1)*F1+HZ(N+2)*F2                                     AF  17
      HZERO=HOHO                                                     AF  18
      RETURN                                                         AF  19
      END                                                            AF  20-
      SUBROUTINE ICHI                                                AG   1
      COMMON /COUNT/ L,LL                                            AG   2
      COMMON /NERD/ MF,NF,NT                                         AG   3
      COMMON /PSIA/ PSIA(16),NPSIA                                   AG   4
      COMMON /TYME/ T,FLIT                                           AG   5
      ZERO=0.0                                                       AG   6
      NPSIA=0                                                        AG   7
      READ (5,3) PSIA                                                AG   8
      DO 1 K=1,16                                                    AG   9
      IF (PSIA(K).LE.ZERO) GO TO 1                                   AG  10
      NPSIA=NPSIA+1                                                  AG  11
      PSIA(NPSIA)=PSIA(K)                                            AG  12
1     CONTINUE                                                       AG  13
      IF (NPSIA.NE.0) WRITE (6,4) NPSIA,(K,PSIA(K),K=1,NPSIA)        AG  14
      L=0                                                            AG  15
      LL=0                                                           AG  16
      T=0.0                                                          AG  17
      FLIT=L                                                         AG  18
      CALL FRITO                                                     AG  19
      CALL NAVSEA                                                    AG  20
      CALL GRAFF                                                     AG  21
      CALL STAGG                                                     AG  22
      CALL STATIC                                                    AG  23
      CALL HORNY                                                     AG  24
      CALL BEDLAM                                                    AG  25
      CALL FIRST                                                     AG  26
      DO 2 K=2,NF                                                    AG  27
      IF (K.NE.NT) CALL PHINOU (K)                                   AG  28
2     CONTINUE                                                       AG  29
      CALL TRICKY                                                    AG  30
      CALL OUTPUT                                                    AG  31
      RETURN                                                         AG  32
C                                                                    AG  33
3     FORMAT (8E10.0)                                                AG  34
4     FORMAT (//20X,'NO. PSIA LINES =',I3//(1P8G15.6))               AG  35
      END                                                            AG  36-
      SUBROUTINE ISOBAR                                              AH   1
      COMMON /EROS/ W(21,60,4),P(21,60)                              AH   2
      COMMON /NERD/ MF,NF,NT,MUFF,LIMIT,NASTY                        AH   3
      COMMON /SPOR/ S(60),SO(60),SOP(60),SI(60),SIP(60),AREA(60)     AH   4
      COMMON /PSIA/ PSIA(16),NPSIA                                   AH   5
      COMMON /SUPER/ R(21,60)                                        AH   6
```

```
      COMMON /WALL/ XWALL(100)
      DIMENSION X(100), Y(100)
      IF (NPSIA.EQ.0) RETURN
      IF ((NPSIA.LE.0).OR.(NPSIA.GT.16)) CALL BOMBER (1'ISOBAR**',1)
      ZERO=0.0
      ONE=1.0
      MAX=95
      CALL HEAD8
      WRITE (8,7)
      CALL NEWPLT
      CALL LOON (XWALL,S0,NF)
      CALL LOON (XWALL,SI,NF)
      DO 6 JERK=1,NPSIA
      KOUNT=0
      JAZZ=JERK
      TARGET=PSIA(JERK)
      TARGET=TARGET*144.0
      DO 2 K=1,MF
      DO 1 J=2,NF
      DP=P(K,J)-P(K,J-1)
      IF (DP.EQ.ZERO) GO TO 1
      F=P(K,J)-TARGET
      F=F/DP
      IF ((F.LT.ZERO).OR.(F.GT.ONE)) GO TO 1
      FVCT=ONE-F
      KOUNT=KOUNT+1
      X(KOUNT)=XWALL(J-1)*F+XWALL(J)*FVCT
      Y(KOUNT)=R(K,J-1)*F+R(K,J)*FVCT
      IF (KOUNT.EQ.MAX) GO TO 5
    1 CONTINUE
    2 CONTINUE
      DO 4 J=1,NF
      XJ=XWALL(J)
      DO 3 K=2,MF
      DP=P(K,J)-P(K-1,J)
      IF (DP.EQ.ZERO) GO TO 3
      F=P(K,J)-TARGET
      F=F/DP
      IF ((F.LT.ZERO).OR.(F.GT.ONE)) GO TO 3
      KOUNT=KOUNT+1
      X(KOUNT)=XJ
      Y(KOUNT)=R(K-1,J)*F+R(K,J)*(ONE-F)
      IF (KOUNT.GT.MAX) GO TO 5
    3 CONTINUE
    4 CONTINUE
    5 CONTINUE
      IF (KOUNT.EQ.0) GO TO 6
      WRITE (8,8) PSIA(JERK),TARGET
      WRITE (8,9) (K,X(K),Y(K),K=1,KOUNT)
      CALL LION (X,Y,KOUNT,JAZZ)
    6 CONTINUE
      CALL NEXTP
      WRITE (8,10)
      RETURN
C
    7 FORMAT  (/20X,' PRINTOUT OF CONSTANT PRESSURE PLOT VALVES '/ )
```

```
8       FORMAT  (/20X,'ISOBAR =',F10.3,'(PSIA)',5X,F10.1,'PSFA'/ )
9       FORMAT  (/20(20X,5(I5,F8.3,F7.3)/ ) )
10      FORMAT  (/20X,'RETURN FROM "ISOBAR" '/ )
        END
        FUNCTION LIBARY (SQRFT)
        SQRFT=0.0
        LIBARY=0
        RETURN
        ENTRY COSRF(X)
        COSRF=COS(X)
        RETURN
        ENTRY SINRF(X)
        SINRF=SIN(X)
        RETURN
        ENTRY COSF(X)
        COSF=COS(X)
        RETURN
        ENTRY SINF(X)
        SINF=SIN(X)
        RETURN
        ENTRY TANF(X)
        TANF=TAN(X)
        RETURN
        ENTRY SQRTF(X)
        SQRTF=0.0
        IF (X.LE.0.0D+0) RETURN
        SQRTF=SQRT(X)
        RETURN
        ENTRY ATANF(X)
        ATANF=ATAN(X)
        RETURN
        ENTRY DUMDUM(X,Y)
        DUMDUM=Y
        IF (X.LT.Y) DUMDUM=X
        RETURN
        ENTRY TANDF(X)
        WDRGH=X/57.29578
        TANDF=TAN(WDRGH)
        RETURN
        END
        SUBROUTINE LINEAR (TARGET,X,NASTY,F1,F2,J1,J2,NOCON)
        DIMENSION X(1)
        ZERO=0.0
        NX=NASTY
        NOCON=1
        IF (NX.LT.2) RETURN
        NOCON=2
        IF (NX.GT.21) RETURN
        NOCON=3
        G1=TARGET-X(1)
        G2=X(NX)-TARGET
        SUM=G2*G1
        IF (SUM.LT.ZERO) RETURN
        DO 1 K=2,NX
        J=K
        G2=TARGET-X(K-1)
```

```
      G1=X(K)-TARGET
      IF ((G1*G2).GE.ZERO) GO TO 2
    1 CONTINUE
      NOCON=4
      RETURN
    2 NOCON=5
      SUM=G1+G2
      IF (SUM.EQ.ZERO) RETURN
      NOCON=0
      F1=G1/SUM
      F2=G2/SUM
      J1=J-1
      J2=J
      RETURN
      END
      SUBROUTINE MAINP
C
      COMMON /DELTAS/ DX,DY,DT,DY2,DT2,DT4
      COMMON /COUNT/ L,LL
      COMMON /NERD/ MF,NF,NT
      COMMON /TYME/ T,FLIT
C
      KOUNT=0
      CALL CARDIN
      CALL START
      CALL GRAPH
      READ (5,6) NTIMES,NEWKIE,IDIOT
C
      IF (IDIOT.NE.0) GO TO 1
      CALL ICHI
      GO TO 2
    1 CALL RESTOR
      IF (IDIOT.LT.0) CALL MEYER
C
    2 IF ((NTIMES*NEWKIE).EQ.0) GO TO 5
      CALL HEAD6
      WRITE (6,7) NTIMES,NEWKIE,IDIOT
C
      DO 4 K=1,NTIMES
      DO 3 J=1,NEWKIE
      T=T+DT
      L=L+1
      FLIT=L
      CALL CYCLE
      CALL BNDRY
      CALL FIRST
      CALL DOWN
      CALL DOODLE
      CALL FIASCO
      CALL STREAM
    3 CALL TRICKY
    4 CALL OUTPUT
C
    5 CONTINUE
      CALL STORE
      RETURN
```

```
C
C
C
6     FORMAT (16I5)
7     FORMAT (/20X,'NUMBER OF PERIODS=',I5,3X,'ITERATIONS/PERIOD=',I3,3
     1X,'RESTART =',I1/)
      END
      SUBROUTINE MAXIE (X,NDEX)
      DIMENSION X(1)
      N=NDEX
      J=1
      IF (N.LE.1) RETURN
      BIG=X(1)
      DO 1 K=2,N
      IF (BIG.GT.X(K)) GO TO 1
      J=K
      BIG=X(K)
1     CONTINUE
      NDEX=J
      RETURN
      ENTRY MINNIE(X,NDEX)
      J=1
      N=NDEX
      IF (N.LE.1) RETURN
      SMALL=X(1)
      DO 2 K=2,N
      IF (SMALL.LT.X(N)) GO TO 2
      J=K
      SMALL=X(N)
2     CONTINUE
      NDEX=J
      RETURN
      END
      SUBROUTINE MEYER
C
      COMMON /NERD/ MF,NF,NT
      COMMON /PRNDTL/ PROUND(60),PMAXB,NANKER,NLAST
      COMMON /STAG/ A(8,21),CP(3,21),CV(3,21),WTM(21),GAMZ(21),RGAS(21),
     1PZ(21),TZ(21),HZ(21),RHOZ(21)
      DIMENSION X(60)
C
      ONE=1.0
      PSTAG = PZ(MF)
      READ (5,20) NANKER,NLAST,PMAXB
      N = NLAST - NANKER + 1
      READ (5,21) (X(K),K=1,8)
      IF (X(1) .GT. 0.0) GO TO 23
      X(1) = - X(1)
      DO 22 K=2,N
22    X(K) = X(K-1)
      GO TO 24
23    IF (N .LE. 8) GO TO 24
      READ (5,21) (X(K),K=9,N)
C     CONVERT PSTAG/PSTATIC TO PSTATIC
24    CONTINUE
      DO 25 K=1,N
```

```
      J = NANKER - 1 + K
      PBOUND(J) = PSTAG/X(K)
   25 CONTINUE
      IF (NLAST .GE. NF)  GO TO 27
      M = NF - NLAST
      DO 26 K=1,M
   26 PBOUND(NLAST+K) = PBOUND(NLAST+K-1)
   27 WRITE (6,28) (K,PBOUND(K),K=NANKER,NF)
      RETURN
   20 FORMAT  (2I5,G10.0)
   21 FORMAT  (8G10.0)
      END
      SUBROUTINE MONO (X,NX)
      DIMENSION X(1)
      N=NX
      DO 1 K=2,N
    1 X(K)=DUMDUM(X(K-1),X(K))
      RETURN
      END
      SUBROUTINE NAVSEA
C
      COMMON /FRAN/ AO(60),AI(60),BO(60),BI(60)
      COMMON /DELTAS/ DX,DY,DT,DY2,DT2,DT4
      COMMON /DUPER/ HA(21),HB(21)
      COMMON /EROS/ D(60,4),MAT(20),KODE(4),SDYDX(60)
      COMMON /FLEX/ NFLX
      COMMON /NDEX/ INDEX(9)
      COMMON /NERD/ MF,NF,NT,MUFF,LIMIT,NEWKY
      COMMON /SPUR/ S(60),SO(60),SOP(60),SI(60),SIP(60),AREA(60)
      COMMON /SUPER/ R(21,60)
      COMMON /SEXX/ NASTIE,IDIOT
      DATA ZERO/0.0/,ONE/1.0/,ZUBER/57.29578/
C
      CALL OREZ (S,360)
      CALL OREZ (D,264)
      READ (5,18) MF,NF
      READ (5,20) DX,DT
      WRITE (6,19) MF,NF
C
      LIMIT=NF-1
      MUFF=MF-1
      NEWKY=MUFF-1
      DY=MUFF
      DY=ONE/DY
      DY2=DY*0.5
      DT2=DT*0.5
      DT4=DT2*0.5
      WRITE (6,12) DT,DX,DY
      READ (5,23) ((D(K,J),J=1,4),K=1,NF)
      CALL EQUATE (SO,D,240)
C
      ENTRY HOAX
      WRITE (6,10)
      WRITE (6,13)
      WRITE (6,14) (K,SO(K),SOP(K),SI(K),SIP(K),K,K=1,NF)
C
```

```
      BUZZ=MF-1
      FUZZ=ONE/BUZZ
      DO 2 K=1,MF
      F1=MF-K
      HA(K)=F1/BUZZ
      F2=K-1
      HB(K)=F2/BUZZ
      DO 1 J=1,NF
1     R(K,J)=(F1*SI(J)+F2*SO(J))*FUZZ
2     CONTINUE
C
      CALL HEAD6
      WRITE (6,15)
      DO 3 J=1,NF
3     WRITE (6,21) J,(R(K,J),K=1,MF)
C
      CALL HUNT
C
      READ (5,18) NASTIE,IDIOT
      IDIOT=MINO(IDIOT,NT)
      IF (NASTIE.LT.0) NASTIE=NT
      WRITE (6,16) NT,NASTIE,IDIOT
      CALL HEAD6
C
      WRITE (6,10)
      WRITE (6,17)
      K=1
      DOK=0.0
      DIK=0.0
      DEGIK=0.0
      DEGOK=0.0
      X=ZERO
      WRITE (6,22) K,X,AREA(K),S(K),SO(K),DOK,SOP(K),DEGOK,SI(K),DIK,SIP
     1(K),DEGIK
C
      EPAR=0.5/DX
      EPARDY=EPAR*DY
      DO 4 K=2,LIMIT
      SDYDX(K)=S(K)*EPARDY
      DIK=(SI(K+1)-SI(K-1))*EPAR
      DOK=(SO(K+1)-SO(K-1))*EPAR
      DEGIK=ZUBER*ATANF(SIP(K))
      DEGOK=ZUBER*ATANF(SOP(K))
      X=(K-1)*DX
      WRITE (6,22) K,X,AREA(K),S(K),SO(K),DOK,SOP(K),DEGOK,SI(K),DIK,SIP
     1(K),DEGIK
4     CONTINUE
      K=NF
      X=(K-1)*DX
      DOK=0.0
      DIK=0.0
      DEGIK=0.0
      DEGOK=0.0
      WRITE (6,22) K,X,AREA(K),S(K),SO(K),DOK,SOP(K),DEGOK,SI(K),DIK,SIP
     1(K),DEGIK
C
```

```
      DO 5 K=2,NT
      NFLX=K-1
      IF (SOP(K)-SOP(K-1)) 5,5,6
5     CONTINUE
6     WRITE (6,11) NFLX
C
      CALL NAVSTO
C
      INDEX(1)=1
      INDEX(2)=4
      INDEX(3)=NT-5
      INDEX(4)=NT-3
      INDEX(5)=NT-1
      INDEX(6)=NT
      INDEX(7)=NT+1
      INDEX(8)=NT+3
      INDEX(9)=NT+5
C
C     COMPUTE ANGLES.
      DO 7 K=1,NF
      BO(K)=ATANF(SOP(K))
      BI(K)=ATANF(SIP(K))
7     CONTINUE
C
      DO 8 K=2,LIMIT
      AO(K)=SDYDX(K)*(BO(K+1)-BO(K-1))
      AI(K)=-SDYDX(K)*(BI(K+1)-BI(K-1))
8     CONTINUE
      DO 9 K=2,LIMIT
      BO(K)=SDYDX(K)*SINRF(BO(K)+BO(K))
      BI(K)=-SDYDX(K)*SINRF(BI(K)+BI(K))
9     CONTINUE
C
      RETURN
C
10    FORMAT  (/20X,' NOZZLE GEOMETRY ' / )
11    FORMAT  (/20X,' INFLECTION POINT NO. =',I3 )
12    FORMAT  (/20X,'DT =',3PF10.4,'(MILLISECONDS)',5X,'DX =',0PF9.5,3X,
     1'DY =',F9.5 )
13    FORMAT  (/36X,'SO',13X,'SOP',13X,'SI',13X,'SIP'/ )
14    FORMAT  ( 5(20X,I5,2X,4F15.6,5X,I5/) )
15    FORMAT  (/20X,'"R" ARRAY'/ )
16    FORMAT  (/20X,'THROAT INDEX(NT) =',I3,4X,' LAST FLOW SMOOTH =',I3,
     14X,'LAST PRESSURE SMOOTH STATION =',I3)
17    FORMAT  (26X,'X',8X,'AREA',7X,'S',8X,'SO',6X,'DSO/DX',5X,3HSO',6X,
     16HSO'(D),7X,'SI',5X,'DSI/DX',4X,3HSI',6X,6HSI'(D) / )
18    FORMAT (16I5)
19    FORMAT  (/20X,'NO. POINTS ON VERTICAL LINE(MF)=',I3,5X,'NO. OF WAL
     1L POINTS(NF) =',I3/)
20    FORMAT (7E12.0)
21    FORMAT  (10X,I5,2X,12F9.4/17X,12F9.4)
22    FORMAT  (  5(10X,I5,5X,11F10.4/) )
23    FORMAT  (4G15.0)
      END
      SUBROUTINE NAVSTO
      COMMON /NERD/ MF,NF
```

```
      COMMON /DELTAS/ DX,DY,DT
      COMMON /NAVIER/ DTDX,DTDX2,DTDX4,DTDX8,DTDY,DTDY2,DTDY4,DTDY8
      COMMON /STOKES/ A(60),B(60),H(60)
      COMMON /SPOR/ S(60),SO(60),SOP(60),SI(60),SIP(60),AREA(60)
      CALL OREZ (A,180)
      ONE=1.0
      DTDX=DT/DX
      DTDX2=DTDX*0.5
      DTDX4=DTDX2*0.5
      DTDX8=DTDX4*0.5
      DTDY=DT/DY
      DTDY2=DTDY*0.5
      DTDY4=DTDY2*0.5
      DTDY8=DTDY4*0.5
      DO 1 K=1,NF
      A(K)=(SOP(K)-SIP(K))/S(K)
      B(K)=SIP(K)/S(K)
      H(K)=ONE/S(K)
    1 CONTINUE
      CALL HEAD6
      WRITE (6,3)
      WRITE (6,5) (K,A(K),B(K),H(K),K=1,NF)
      DO 2 K=1,180
    2 A(K)=A(K)*DTDY2
      CALL HEAD6
      WRITE (6,4)
      WRITE (6,5) (K,A(K),B(K),H(K),K=1,NF)
      RETURN
C
    3 FORMAT   (29X,'(SOP-SIP)/S',8X,'SIP/S',10X,'1/S' / )
    4 FORMAT   (29X,'(SOP-SIP)/S',8X,'SIP/S',10X,'1/S',15X,'*0.5*DT/DY'/)
    5 FORMAT   (20X,I5,2X,1P3G15.6)
      END
      SUBROUTINE NORMAL (X,NERD)
      DIMENSION X(1)
      N=NERD
      SUM=0.0
      DO 1 K=1,N
    1 SUM=SUM+X(K)
      IF (SUM.LE.0.0) RETURN
      DO 2 K=1,N
    2 X(K)=X(K)/SUM
      RETURN
      END
      SUBROUTINE OREZ (X,NERD)
      DIMENSION X(1)
      N=NERD
      DO 1 K=1,N
    1 X(K)=-0.0
      RETURN
      END
      SUBROUTINE OUTPUT
      COMMON /COUNT/ L,LL
      COMMON /NERD/ MF,NF,NT
      N6=6
      N8=8
```

```
      LL=LL+1
      DO 2 K=1,NF
      CALL HEAD6
      CALL GROG (K)
      DO 1 J=1,MF
1     CALL PLINE (J,K,N6)
2     CONTINUE
      CALL ENIGMA
      CALL HEAD8
      WRITE (8,5) L
      CALL FROG
      DO 3 K=1,NF
3     CALL PLINE (1,K,N8)
      CALL HEAD8
      WRITE (8,6) L
      CALL FROG
      DO 4 K=1,NF
4     CALL PLINE (MF,K,N8)
      CALL ISOBAR
      RETURN
C
5     FORMAT  (/20X,'AXIS  ITERATION NO=',I5 / )
6     FORMAT  (/20X,'WALL  ITERATION NO=',I5 / )
      END
      SUBROUTINE   PARAB($X,$Y,$)
      IMPLICIT REAL*8(A-H,O-Z)
      DIMENSION  $X(1),$Y(1),$(1)
      $(1) = - 0.0
      $(2) = - 0.0
      $(3) = - 0.0
      X1 = $X(1)
      X2 = $X(2)
      X3 = $X(3)
      F1 = X1 - X2
      F2 = X2 - X3
      F3 = X3 - X1
      D = F1*F2*F3
      IF (D .EQ. 0.0D+0)  RETURN
      D = -1.0/D
      Y1 = $Y(1)
      Y2 = $Y(2)
      Y3 = $Y(3)
      Y1 = Y1*F2
      Y2 = Y2*F3
      Y3 = Y3*F1
      $(1) = D*(Y1*X2*X3 + Y2*X1*X3 + Y3*X1*X2)
      $(2) = -D*(Y1*(X2+X3) + Y2*(X1+X3) + Y3*(X1+X2))
      $(3) = D*(Y1+Y2+Y3)
      RETURN
      END
      SUBROUTINE PCLASS
      COMMON /SPY/ KCLASS,KGROUP
      INTEGER*4  JERK(3,3)  /
     *  'UNCL','ASSI','FIED'
     *, 'CONF','IDEN','TIAL'
     *, '...S','ECRE','T...' /
```

```
      DIMENSION M(3)
      CALL EQUATE (M,JERK11,KCLASS+1),3)
      CALL DATE (KDAY,KYR)
      RETURN
      ENTRY PCL6
      WRITE (6,1) M
      WRITE (6,2) KDAY,KYR,KGROUP,M
      RETURN
      ENTRY PCL8
      WRITE (8,1) M
      WRITE (8,2) KDAY,KYR,KGROUP,M
      RETURN
      ENTRY PCL14
      WRITE (14,1) M
      WRITE (14,2) KDAY,KYR,KGROUP,M
      RETURN
C
1     FORMAT    ('2',T58,18('*')/T58,'*',T75,'*'/T58,'*  ',3A4,T75,'*'/
     1T58,'*',T75,'*'/T58,18('*') )
2     FORMAT  ('0'/' DATE=',I3,'/',I2,T58,18('*')/' GROUP',I2,T58,'*', T
     175,'*'/' ARO INC.',T58,'*  ',3A4,'  *'/' ARNOLD AIR FORCE STATION,
     2TENN.',T58,'*',T75,'*'/T58,18('*') / )
      END
      SUBROUTINE PHINQU (NXSTA)
      COMMON /FLIGNR/ WEIGHT,PTHROT,PANIC
      COMMON /NERD/ MF,NF,NT,MUFF,LIMIT
      NX=NXSTA
      TARGET=WEIGHT
      IF (NX.LT.NT) GO TO 1
      IF (NX.GT.NT) GO TO 2
      CALL BOMBER ('PHINQU',1)
      RETURN
1     CONTINUE
      IF (NX.LE.0) CALL BOMBER ('PHINQU',NX)
      DIDDLE=+1.0376
      XLOW=PTHROT
      XHIG=PANIC
      GO TO 3
2     CONTINUE
      IF (NX.GT.NF) CALL BOMBER ('PHINQU',NX)
      XLOW=0.0
      XHIG=PTHROT
      DIDDLE=-2.06
      GO TO 3
3     CONTINUE
      KOUNT=-20
4     KOUNT=KOUNT+1
      IF (KOUNT.EQ.0) GO TO 6
      X=(XLOW+XHIG)*0.5
      CALL ZETWP (X,NX)
      XMAZZ=XMASS(NX)
      FONK=TARGET-XMAZZ
      TEST=FONK/DIDDLE
      IF (TEST.GT.0.0) GO TO 5
      XLOW=X
      GO TO 4
```

```
5     XHIG=X
      GO TO 4
      ENTRY FINK(POUNDS)
      TARGET=POUNDS
      NX=1
      GO TO 1
6     CONTINUE
      CALL SETWP (X,NX)
      RETURN
      END
      SUBROUTINE PLINE (MY,NX,NUNIT)
      COMMON /COUNT/ L,LL
      COMMON /EROS/ W(21,60,5)
      COMMON /SPOR/ S(60),SO(60),SOP(60),SI(60),SIP(60),AREA(60)
      COMMON /STUPID/ F(21,60)
      COMMON /SUPER/ R(21,60)
      M=MY
      N=NX
      NU=NUNIT
      P=W(M,N,5)
      W1=W(M,N,1)
      W2=W(M,N,2)
      W3=W(M,N,3)
      W4=W(M,N,4)
      RHO=W1/R(M,N)
      U=W2/W1
      V=W3/W1
      CALL FREAK (P,RHO,U,V,M,N,PZERO,TZERO,DEGRE,T,XM,VEL,GAM)
      FUZZ=F(M,N)
      IF (NU.NE.6) GO TO 1
      WRITE (6,2) M,FUZZ,W1,W2,W3,W4,P,T,XM,GAM,RHO,U,V,DEGRE,PZERO,TZER
     1O,VEL
      RETURN
1     CONTINUE
      IF (NU.NE.8) CALL BOMBER ('PLINE',1)
      WRITE (8,2) N,FUZZ,W1,W2,W3,W4,P,T,XM,GAM,RHO,U,V,DEGRE,PZERO,TZER
     1O,VEL
      RETURN
      ENTRY GROG(NASTY)
      N=NASTY
      WRITE (6,3) L,N,SI(N),SO(N),LL
      WRITE (6,4)
      RETURN
      ENTRY FROG
      WRITE (8,4)
      RETURN
C
2     FORMAT  (3X,I5,2X,2PF12.2,3X,1P7G15.5/10X,1P8G15.5/ )
3     FORMAT  (/20X,'ITERATION NO.=',I4,3X,'X-STATION NO.=',I3,3X,'Y-INN
     1ER =',F9.4,3X,'Y-OUTER =',F9.4,5X,'OUTPUT NO. =',I5 / )
4     FORMAT  (11X,'STREAMLINE % ',8X,'W1',14X,'W2',12X,'W3',14X,'W4',10
     1X,'P-STAT',10X,'TEMP(R)',7X,'MACH NO' /15X,'CP/CV',9X,'DENSITY',11
     2X,'U',13X,'V',10X,'FLOW ANG(D)',7X,'P-STAG',10X,'T-STAG',7X,'VELOC
     3ITY' / )
      END
      SUBROUTINE PMIN (PM)
```

```
      COMMON /STAG/ A(8,21),CP(3,21),CV(3,21),WTM(21),GAMZ(21),RGAS(21), AX   2
     1PZ(21),TZ(21)                                                      AX   3
      X=PZ(1)                                                            AX   4
      DO 1 K=2,21                                                        AX   5
      IF (X.GT.PZ(K)) X=PZ(K)                                            AX   6
    1 CONTINUE                                                           AX   7
      PM=X                                                               AX   8
      RETURN                                                             AX   9
      END                                                                AX  10-
      FUNCTION PSTAG (CP,TSTAT,TZERO,PSTAT,SAGR)                         AY   1
      DIMENSION CP(3)                                                    AY   2
      CPZ=CP(1)                                                          AY   3
      CPA=CP(2)                                                          AY   4
      CPB=CP(3)                                                          AY   5
      T=TSTAT                                                            AY   6
      TZ=TZERO                                                           AY   7
      P=PSTAT                                                            AY   8
      RGAS=SAGR                                                          AY   9
      BARF=CPA/CPZ                                                       AY  10
      TRAF=0.5*CPB/CPZ                                                   AY  11
      TRAT=TZ/T                                                          AY  12
      POWER=CPZ/RGAS                                                     AY  13
      EPAR=(TZ-T)*(BARF+(TZ+T)*TRAF)                                     AY  14
      XLAX=EXP(EPAR)                                                     AY  15
      PRAT=(TRAT*XLAX)**POWER                                            AY  16
      PZERO=PRAT*P                                                       AY  17
      PSTAG=PZERO                                                        AY  18
      RETURN                                                             AY  19
      END                                                                AY  20-
      SUBROUTINE PUNTZ (NY,NX,PRES)                                      AZ   1
      COMMON /ERDS/ W(21,60,4),P(21,60)                                  AZ   2
      COMMON /NERD/ MF,NF,NT,MUFF,LIMIT                                  AZ   3
      COMMON /STUPID/ F(21,60)                                           AZ   4
      COMMON /SUPER/ R(21,60)                                            AZ   5
      COMMON /SPOR/ S(60),SO(60),SOP(60),SI(60),SIP(60),AREA(60)         AZ   6
      COMMON /DUPER/ HA(21),HB(21)                                       AZ   7
      J=NY                                                               AZ   8
      K=NX                                                               AZ   9
      PP=PRES                                                            AZ  10
      FUZZ=F(J,K)                                                        AZ  11
      SLOPE=HA(J)*SIP(K)+HB(J)*SOP(K)                                    AZ  12
      COSIN=SQRTF(1.0/(1.0+SLOPE**2))                                    AZ  13
      CALL GRUNK (FUZZ,PP,RHO,VEL,EASY)                                  AZ  14
      W1=RHO*R(J,K)                                                      AZ  15
      WV=W1*VEL                                                          AZ  16
      W2=WV*COSIN                                                        AZ  17
      W3=W2*SLOPE                                                        AZ  18
      W4=EASY*R(J,K)                                                     AZ  19
      W(J,K,1)=W1                                                        AZ  20
      W(J,K,2)=W2                                                        AZ  21
      W(J,K,3)=W3                                                        AZ  22
      W(J,K,4)=W4                                                        AZ  23
      P(J,K)=PP                                                          AZ  24
      RETURN                                                             AZ  25
      END                                                                AZ  26-
      FUNCTION PVNTS (WONE,WFOUR,MAMA,NERK)                              BA   1
```

```
      COMMON /STUPID/ F(21,60)
      COMMON /SUPER/ R(21,60)
      W1=WONE
      W4=WFOUR
      M=MAMA
      N=NERK
      FUZZ=F(M,N)
      HO=HZERO(FUZZ)
      P=(HO*W1-W4)/R(M,N)
      PVNTS=P
      RETURN
      END
      FUNCTION RHOMAX (FUZZ)
      COMMON /STAG/ A(8,21),CP(3,21),CV(3,21),WTM(21),GAMZ(21),RGAS(21),
     1PZ(21),TZ(21),HZ(21),RHOZ(21)
      ONE=1.0
      ZERO=0.0
      F=FUZZ
      IF (F.EQ.ONE) GO TO 3
      IF (F.EQ.ZERO) GO TO 2
      IF (F*(ONE-F).LE.ZERO) CALL BOMBER ('*RHOMAX*',1)
      X=F*20.0
      NEWKY=X
      DIGIT=NEWKY
      F2=X-DIGIT
      F1=ONE-F2
      J=NEWKY+1
      K=J+1
      RZ=F1*RHOZ(J)+F2*RHOZ(K)
 1    RHOMAX=RZ
      RETURN
 2    RZ=RHOZ(1)
      GO TO 1
 3    RZ=RHOZ(21)
      GO TO 1
      END
      FUNCTION RIDDLE (NY,NX)
      COMMON /STUPID/ F(21,60)
      COMMON /EROS/ W(21,60,4),P(21,60)
      COMMON /SUPER/ R(21,60)
      COMMON /THERMO/ CPX(3),CVX(3),RAG
      ONE=1.0
      ZERO=0.0
      K=NY
      J=NX
      RIDDLE=ZERO
      FUZZ=F(K,J)
      RHO=W(K,J,1)/R(K,J)
      CALL FONKY (FUZZ,RHO,PSTAT,VEL,EASY,T)
      VV=VEL**2
      IF (VV.EQ.ZERO) CALL BOMBER ('*RIDDLE*',2)
      GAMMA=CSUBP(T)/CSUBV(T)
      BETA=GAMMA*RAG*T/VV
      XM=SQRTF(ONE/BETA)
      RID=ONE-BETA
      RIDDLE=RID
```

```
      RETURN
      END
      SUBROUTINE ROGUE
      COMMON /EROS/ W(21,60,5)
      COMMON /NERD/ MF,NF,NT
      COMMON /SUPER/ R(21,60)
      DO 1 J=1,5
1     CALL EQUATE (W(1,60,J),W(1,1,J),MF)
      DO 3 K=1,MF
      DO 2 J=1,NF
2     W(K,J,1)=W(K,J,1)/R(K,J)
3     CONTINUE
      DO 4 J=1,NF
      K=NF+1-J
4     CALL EQUATE (W(1,K+2,1),W(1,K,1),MF)
      CALL SLICK
      DO 5 J=1,5
5     CALL EQUATE (W(1,1,J),W(1,60,J),MF)
      RETURN
      END
      SUBROUTINE SAM
      COMMON /EROS/ W(21,60,4),P(21,60)
      COMMON /NERD/ MF,NF,NT,MUFF
      COMMON /STUPID/ F(21,60)
      COMMON /SUPER/ R(21,60)
      COMMON /WORK/ X(60)
      COMMON /SEXX/ NASTIE,IDIOT
C     PRESSURE SMOOTHING
      IF ((IDIOT.LT.2).OR.(IDIOT.GT.NT)) CALL BOMBER ('SAMIDIOT',0)
      DO 3 K=2,MUFF
      DO 1 J=1,IDIOT
1     X(J)=P(K,J)
C
      CALL SMOOTH (X,IDIOT,4)
      MORON=IDIOT-1
      DO 2 J=2,MORON
      CALL GRONK (F(K,J),X(J),RHO,VEL,EASY)
      RWR=SQRTF(W(K,J,2)**2+W(K,J,3)**2)
      CSN=W(K,J,2)/RWR
      SN=W(K,J,3)/RWR
      W(K,J,1)=RHO*R(K,J)
      W(K,J,2)=W(K,J,1)*VEL*CSN
      W(K,J,3)=W(K,J,1)*VEL*SN
      W(K,J,4)=EASY*R(K,J)
      P(K,J)=X(J)
2     CONTINUE
3     CONTINUE
      RETURN
      END
      SUBROUTINE SER142
      CALL ERRSET (207,256,-1,1)
      CALL ERRSET (208,256,-1,1)
      CALL ERRSET (209,256,-1,1)
      CALL MAINP
      RETURN
      END
```

```
      SUBROUTINE SETWP (PRES,NXSTA)
      ENTRY ZETWP(PRES,NXSTA)
      COMMON /NERO/ MF
    1 NX=NXSTA
      PP=PRES
      DO 2 K=1,MF
    2 CALL PUNTZ (K,NX,PP)
      RETURN
      END
      SUBROUTINE SLICK
      COMMON /EROS/ W(21,60,4)
      COMMON /NERO/ MF,NF,NT,MUFF,NEWKY
      DO 2 J=2,NEWKY
      DO 1 K=2,MUFF
      L=J+2
      RU=W(K+1,L,1)
      RD=W(K-1,L,1)
      RL=W(K,L-1,1)
      R=W(K,L,1)
      RR=W(K,L+1,1)
    1 W(K,J,1)=BANDIT(RU,RD,RL,R,RR)
    2 CONTINUE
      DO 3 J=2,NF
      W(1,J,1)=W(1,J+2,1)
    3 W(MF,J,1)=W(MF,J+2,1)
      DO 4 K=2,MUFF
    4 W(K,NF,1)=W(K,NF+2,1)
      RETURN
      END
      SUBROUTINE SMOOTH (X,NX,NTIMES)
      DIMENSION X(1), Z(100)
      N=NX
      NERD=N-1
      LIMIT=NTIMES
      F=0.8125
      FOO=0.5-0.5*F
      DO 2 J=1,LIMIT
      CALL EQUATE (Z,X,N)
      DO 1 K=2,NERD
    1 X(K)=F*Z(K)+FOO*(Z(K+1)+Z(K-1))
    2 CONTINUE
      RETURN
      END
      SUBROUTINE SNAFU (MM,NN)
      COMMON /EROS/ W(21,60,4)
      COMMON /STUPID/ F(21,60)
      DIMENSION A(4)
      M=MM
      N=NN
      KOUNT=0
      DO 2 KRUD=1,3
      K=M+KRUD-2
      DO 1 JOLLY=1,3
      J=N+JOLLY-2
      KOUNT=KOUNT+1
      A(1)=W(K,J,1)
```

```
      A(2)=W(K,J,2)
      A(3)=W(K,J,3)
      A(4)=W(K,J,4)
      FUZZ=F(K,J)
      CALL EVAL (A,KOUNT,FUZZ)
1     CONTINUE
2     CONTINUE
      RETURN
      END
      SUBROUTINE STAGG
      COMMON /STAG/ A(8,21),CP(3,21),CV(3,21),WTM(21),GAMZ(21),RGAS(21),
     1PZ(21),TZ(21),HZ(21),RHOZ(21)
      COMMON /CPDATA/ CPSPEC(3,8),SPCMWT(8),NAME(8)
      COMMON /EROS/ B(8,50),X(50),P(50),T(50),F(50),NSTAG
      COMMON /LIMITS/ VMIN
      CALL CPEVAL
      CALL OREZ (A,420)
      GCJ=32.174*777.648
      GRINCH=1.98726
      WENCH=GRINCH*GCJ
      NS=21
      ONE=1.0
      CALL HEAD6
      WRITE (6,21)
      READ (5,13) NSTAG
      WRITE (6,14) NSTAG
      NX=NSTAG
      READ (5,15) (X(K),P(K),T(K),(B(J,K),J=1,8),K=1,NSTAG)
      WRITE (6,9) NAME
      WRITE (6,16) (K,X(K),P(K),T(K),(B(J,K),J=1,8),K=1,NSTAG)
      CALL HEAD6
      WRITE (6,21)
      DO 1 K=1,NSTAG
      P(K)=P(K)*144.0
1     CALL NORMAL (B(1,K),8)
      WRITE (6,10) NAME
      WRITE (6,16) (K,X(K),P(K),T(K),(B(J,K),J=1,8),K=1,NSTAG)
      FURD=NS-1
      DO 4 K=1,NS
      TARGET=K-1
      TARGET=TARGET/FURD
      CALL LINEAR (TARGET,X,NX,F1,F2,J1,J2,NOCON)
      IF (NOCON.NE.0) CALL BOMBER ('STAGG',NOCON)
      PZ(K)=P(J1)*F1+P(J2)*F2
      TZ(K)=T(J1)*F1+T(J2)*F2
      F(K)=TARGET
      SUM=0.0
      DO 3 J=1,8
      A(J,K)=B(J,J1)*F1+B(J,J2)*F2
      DO 2 L=1,3
2     CP(L,K)=CP(L,K)+A(J,K)*CPSPEC(L,J)
      SUM=SUM+A(J,K)/SPCMWT(J)
3     CONTINUE
      WTM(K)=ONE/SUM
      RGAS(K)=WENCH*SUM
4     CONTINUE
```

```
      DO 5 K=1,NS
5     RHOZ(K)=PZ(K)/(TZ(K)*RGAS(K))
      DO 6 K=1,63
6     CP(K,1)=CP(K,1)*GCJ
      DO 7 K=1,NS
      CV(1,K)=CP(1,K)-RGAS(K)
      CV(2,K)=CP(2,K)
      CV(3,K)=CP(3,K)
7     CONTINUE
      WRITE (6,10) NAME
      WRITE (6,16) (K,F(K),PZ(K),TZ(K),(A(J,K),J=1,8),K=1,NS)
      CALL HEAD6
      WRITE (6,21)
      WRITE (6,11)
      WRITE (6,17) (K,WTM(K),RGAS(K),(CP(J,K),J=1,3),(CV(J,K),J=1,3),K=1
     1,NS)
      WRITE (6,18)
      DO 8 K=1,NS
      HZ(K)=TZ(K)*(CP(1,K)+TZ(K)*(CP(2,K)*0.5+0.3333333*CP(3,K)*TZ(K)))
      G=CP(1,K)+TZ(K)*(CP(2,K)+TZ(K)*CP(3,K))
      H=CV(1,K)+TZ(K)*(CV(2,K)+TZ(K)*CV(3,K))
      GAMMA=G/H
      GAMZ(K)=GAMMA
      X(K)=SQRTF(GAMZ(K)*RGAS(K)*TZ(K))
      WRITE (6,12) K,GAMMA,G,H,HZ(K),X(K)
8     CONTINUE
      K=21
      CALL MAXIE (X,K)
      KMAX=K
      AMAX=X(K)
      VMAX=AMAX*0.05
      WRITE (6,19) KMAX,AMAX,VMAX
C
      K=21
      CALL MINNIE (X,K)
      KMIN=K
      AMIN=X(K)
      VMIN=AMIN*0.05
      WRITE (6,20) KMIN,AMIN,VMIN
C
      RETURN
C
9     FORMAT  (/16X,'STREAM FRACT.',8X,'STAGNATION',19X,'RELATIVE MASS O
     1F SPECIE'/30X,'PSIA',7X,'T-R',8(5X,A4) / )
10    FORMAT  (/30X,'PSFA',7X,'T-R',8(5X,A4)/)
11    FORMAT  (/20X,'MOL WT',5X,'GAS CON',17X,'CP COEFFICIENTS',22X,'CV
     1COEFFICIENTS' / )
12    FORMAT  (20X,I5,5X,F8.4,2X,1P4G15.6)
13    FORMAT  (16I5)
14    FORMAT  (/20X,'STAGNATION PARAMETERS' ,5X,'NO. INPUT POINTS=',I5/)
15    FORMAT  (3E12.0,4X,8E5.0)
16    FORMAT  (10X,I5,F8.4,F12.3,F10.1,8F9.4 )
17    FORMAT  (10X,I5,2X,1P8G13.4)
18    FORMAT  (/20X,'STAGNATION EVALUATION' //32X,'GAMMA',10X,'CP',12X,'
     1CV',10X,'ENTHAL',8X,'SPEED OF SOUND'/)
19    FORMAT  (/20X,'INDEX OF MAX. STAGNATION SOUND SPEED =',I3,3X,'SPEE
```

```
      ID =',F9.2,'(FT/SEC)',5X,'VMAX =',F9.2,'(FT/SEC)' / )                BK 104
 20   FORMAT  (/20X,'INDEX OF MIN. STAGNATION SOUND SPEED =',I3,3X,'SPEE BK 105
      ID =',F9.2,'(FT/SEC)',5X,'VMIN =',F9.2,'(FT/SEC)' / )                BK 106
 21   FORMAT  (/20X,' GAS PROPERTIES'/)                                     BK 107
      END                                                                   BK 108-
      SUBROUTINE START                                                      BL   1
      COMMON /APE/ LINE(30)                                                 BL   2
      DIMENSION LUSH(27), KARD(20)                                          BL   3
      EQUIVALENCE (LINE,LUSH,KARD)                                          BL   4
      DATA KRUD/'1 **'/,MUNG/'****'/,MUD/'%*<'/                             BL   5
 1    READ (5,3,END=2)  KARD                                                BL  51
      IF (KARD(1).EQ.MUNG) GO TO 2                                          BL   6
      IF (KARD(1).NE.KRUD) GO TO 1                                          BL   7
      KARD(1)=MUD                                                           BL   8
      ENTRY HEAD6                                                           BL   9
      ENTRY HEAD                                                            BL  10
      CALL PCL6                                                             BL  11
      CALL TIME (IDIOT,NSECS)                                               BL  12
      MINUTE=NSECS/60                                                       BL  13
      NSEC=NSECS-MINUTE*60                                                  BL  14
      KHOUR=MINUTE/60                                                       BL  15
      MINUTE=MINUTE-KHOUR*60                                                BL  16
      LINE(28)=KHOUR                                                        BL  17
      LINE(29)=MINUTE                                                       BL  18
      LINE(30)=NSEC                                                         BL  19
      WRITE (6,3) LINE                                                      BL  20
      RETURN                                                                BL  21
      ENTRY HEAD8                                                           BL  22
      CALL PCL8                                                             BL  23
      WRITE (8,3) LUSH                                                      BL  24
      RETURN                                                                BL  25
      ENTRY HEAD14                                                          BL  26
      CALL PCL14                                                            BL  27
      WRITE (14,3) LUSH                                                     BL  28
      RETURN                                                                BL  29
 2    CALL ENDJOB                                                           BL  30
      RETURN                                                                BL  31
C                                                                           BL  32
 3    FORMAT    (27A4,I4,':',I2,':',I2 / )                                  BL  33
      END                                                                   BL  34-
      SUBROUTINE STATIC                                                     BM   1
      COMMON /ABLE/ AX(21)                                                  BM   2
      COMMON /EROS/ B(8,50),X(50),P(50),T(50),F(50),NSTAT                   BM   3
      COMMON /NERD/ MF,NF,NT                                                BM   4
      FURD=MF-1                                                             BM   5
      CALL HEAD6                                                            BM   6
      WRITE (6,10)                                                          BM   7
      DO 1 K=1,21                                                           BM   8
 1    AX(K)=1.0                                                             BM   9
      DO 2 K=1,MF                                                           BM  10
      TARGET=K-1                                                            BM  11
      TARGET=TARGET/FURD                                                    BM  12
 2    F(K)=TARGET                                                           BM  13
      READ (5,13) NSTAT                                                     BM  14
      IF (NSTAT) 9,7,3                                                      BM  15
 3    IF (NSTAT-21) 4,4,8                                                   BM  16
```

```
4     N=NSTAT
      READ (5,14) (X(K),P(K),K=1,N)
      WRITE (6,11)
      WRITE (6,15) (K,X(K),P(K),K=1,N)
      NX=N
      DO 6 K=1,MF
      TARGET=F(K)
      CALL LINEAR (TARGET,X,NX,F1,F2,J1,J2,NOCON)
      IF (NOCON) 8,5,8
5     AX(K)=P(J1)*F1+P(J2)*F2
6     CONTINUE
7     WRITE (6,12)
      WRITE (6,15) (K,F(K),AX(K),K=1,MF)
      RETURN
8     CALL BOMBER (8H STATIC ,5)
9     RETURN
C
10    FORMAT (/20X,43H INLET STATIC PRESSURE DISTRIBUTION FACTORS/)
11    FORMAT (18X,5HINPUT,6X,4HR/RW,6X,11HPRES. FACT./)
12    FORMAT (/16X,8HCOMPUTED,5X,4HR/RW,6X,11HPRES. FACT./)
13    FORMAT (16I5)
14    FORMAT (2E12.0)
15    FORMAT (20X,I5,2X,2F10.5)
      END
      SUBROUTINE STORE
      COMMON /ABLE/ AX(21)
      COMMON /APE/ KITLE,LABEL(19)
      COMMON /COUNT/ L,LL
      COMMON /CPDATA/ TGFH(40)
      COMMON /DELTAS/ DX,DY,DT,DY2,DT2,DT4
      COMMON /DUPER/ HA(21),HB(21)
      COMMON /EROS/ W(21,60,4),P(21,60)
      COMMON /FANG/ F(9,4),G(9,4)
      COMMON /FLIGNR/ WEIGHT,PTHROT,PANIC
      COMMON /FRAN/ AO(60),AI(60),BO(60),BI(60)
      COMMON /FUBAR/ F1,F2,F3,F4,F5
      COMMON /FURD/ WMP(4),WMM(4),WNP(4),WNM(4),WMN(4)
      COMMON /LIMITS/ VMIN
      COMMON /NAVIER/ DTDX,DTDX2,DTDX4,DTDX8,DTDY,DTDY2,DTDY4,DTDY8
      COMMON /NERD/ MF,NF,NT,MUFF,LIMIT,NASTY
      COMMON /NITWIT/ CLOWN,VULGAR
      COMMON /SPOR/ S(60),SO(60),SOP(60),SI(60),SIP(60),AREA(60)
      COMMON /SPY/ KCLASS,KGROUP
      COMMON /STAG/ AA(8,21),CP(3,21),CV(3,21),WTM(21),GAMZ(21),RGAS(21)
     1,PZ(21),TZ(21),HZ(21),RHOZ(21)
      COMMON /STOKES/ A(60),B(60),H(60)
      COMMON /STUPID/ FOOL(21,60)
      COMMON /SUPER/ R(21,60)
      COMMON /THERMO/ RHFJ(7)
      COMMON /TYME/ T,FLIT
      COMMON /WORK/ XTRA(99)
      COMMON /SKALE/ SIMPLE(4)
      COMMON /PSIA/ PSIA(16),NPSIA
      COMMON /WALL/ XWALL(100)
      COMMON /SFXX/ NASTIE,IDIOT
      COMMON  /PRNDTL/  PROUND(60),PMAXB,NANKER,NLAST
```

```
      COMMON /NDEX/ INDEX(9)
      COMMON /FLEX/ NFLX
      REWIND 9
      WRITE (9) KITLE,LABEL,L,LL,TGFH,DX,DY,DT,DY2,DT2,DT4,HA,HB,W,P,F,G
     1,WEIGHT,PTHROT,PANIC,F1,F2,F3,F4,F5,WMP,WMM,WNP,WNM,WMN,DTDX,DTDX2
     2,DTDX4,DTDX8,DTDY,DTDY2,DTDY4,DTDY8,MF,NF,NT,MUFF,LIMIT,NASTY,CLOW
     3N,VULGAR,S,SO,SOP,SI,SIP,AREA,KCLASS,KGROUP,AA,CP,CV,WTM,GAMZ,RGAS
     4,PZ,TZ,HZ,RHOZ,A,B,H,FOOL,R,RHFJ,T,FLIT,XTRA,PSIA,NPSIA,SIMPLE,XWA
     5LL,VMIN,AX,NASTIE,IDIOT,FPRAT,PBOUND,NANKER,INDEX,NFLX,AO,AI,BO,BI
      END FILE 9
      REWIND 9
      WRITE (14,12)
      RETURN
      ENTRY RESTOR
      REWIND 9
      READ (9) KITLE,LABEL,L,LL,TGFH,DX,DY,DT,DY2,DT2,DT4,HA,HB,W,P,F,G,
     1WEIGHT,PTHROT,PANIC,F1,F2,F3,F4,F5,WMP,WMM,WNP,WNM,WMN,DTDX,DTDX2,
     2DTDX4,DTDX8,DTDY,DTDY2,DTDY4,DTDY8,MF,NF,NT,MUFF,LIMIT,NASTY,CLOWN
     3,VULGAR,S,SO,SOP,SI,SIP,AREA,KCLASS,KGROUP,AA,CP,CV,WTM,GAMZ,RGAS,
     4PZ,TZ,HZ,RHOZ,A,B,H,FOOL,R,RHFJ,T,FLIT,XTRA,PSIA,NPSIA,SIMPLE,XWAL
     5L,VMIN,AX,NASTIE,IDIOT,FPRAT,PBOUND,NANKER,INDEX,NFLX,AO,AI,BO,BI
      REWIND 9
      WRITE (6,13)
      RETURN
      ENTRY FREEP
      IF (FPRAT) 2,1,2
    1 RETURN
    2 CONTINUE
      NEWP=NANKER
      ONE=1.0
      CALL HEAD6
      WRITE (6,11) (K,SO(K),SOP(K),K=1,NF)
      CALL HEAD6
      WRITE (6,9)
      DO 3 K=NEWP,NF
      RHO=W(MF,K,1)/R(MF,K)
      U=W(MF,K,2)/W(MF,K,1)
      V=W(MF,K,3)/W(MF,K,1)
      PX=P(MF,K)
      CALL FREAK (PX,RHO,U,V,MF,K,PD,TD,DEG,T,XM,VEL,GAM)
      BETA=(XM+ONE)*(XM-ONE)
      BETA=ABS(BETA)
      BETA=SQRTF(BETA)
      DP = PX - PBOUND(K)
      DGNU=DP*BETA/(RHO*VEL*VEL)
      SOP(K)=SOP(K)+DGNU
      WRITE (6,10) PX,RHO,VEL,XM,BETA,DP,DGNU,K
    3 CONTINUE
      SOP(NEWP)=AMIN1(SOP(NEWP),SOP(NEWP+1))
      SP24=SOP(NEWP)
      SPLOW=0.5*SOP(NEWP-1)+0.5*SOP(NEWP+1)
      SPHIG=0.1*SOP(NEWP-1)+0.9*SOP(NEWP+1)
      TEST=(SP24-SPLOW)*(SPLOW-SPHIG)
      IF (TEST) 5,5,4
    4 SOP(NEWP)=SPLOW
      GO TO 7
```

```
5     TEST=(SP24-SPHIG)*(SPHIG-SPLOW)
      IF (TEST) 7,7,6
6     SOP(NEWP)=SPHIG
7     CONTINUE
      WRITE (6,11) (K,SO(K),SOP(K),K=1,NF)
      DINGLE=DX*0.5
      DO 8 K=NEWP,NF
      SO(K)=SO(K-1)+DINGLE*(SOP(K-1)+SOP(K))
8     CONTINUE
      CALL HOAX
      RETURN
C
9     FORMAT  (/21X,'PSFA',11X,'RHO',12X,'VEL',10X,'MACH NO.',8X,'BETA',
     111X,'D-PRES',8X,'D-PMA'/ )
10    FORMAT  (10X,F15.2,E15.5,F15.2,F15.4,F15.5,F15.2,F15.5,I8)
11    FORMAT (20X,I5,5X,2F15.5)
12    FORMAT  ('1',20X,'STORED ON NINE' /)
13    FORMAT ('1',20X,'RESTORED FROM NINE'/)
      END
      SUBROUTINE STREAM
      COMMON /EROS/ W(21,60,5)
      COMMON /NERD/ MF,NF,NT
      COMMON /STUPID/ F(21,60)
      DO 3 NX=1,NF
      F(1,NX)=0.0
      DO 1 K=2,MF
1     F(K,NX)=F(K-1,NX)+0.5*(W(K-1,NX,2)+W(K,NX,2))
      DO 2 K=1,MF
2     F(K,NX)=F(K,NX)/F(MF,NX)
3     CONTINUE
      RETURN
      END
      SUBROUTINE TRICKY
      COMMON /EROS/ W(21,60,4),P(21,60)
      COMMON /NDEX/ INDEX(9)
      COMMON /COUNT/ L,LL
      COMMON /NERD/ MF,NF,NT
      COMMON /STAG/ A(8,21),CP(3,21),CV(3,21),WTM(21),GAMZ(21),RGAS(21),
     1PZ(21),TZ(21),HZ(21),RHOZ(21)
      DIMENSION X(9), Y(9)
      IF (L) 2,1,2
1     WRITE (14,6) INDEX
2     CONTINUE
      DO 3 K=1,9
      J=INDEX(K)
      X(K)=P(MF,J)/PZ(MF)
      Y(K)=P(1,J)/PZ(1)
3     CONTINUE
      WRITE (14,4) X,L
      WRITE (14,5) Y
      RETURN
C
4     FORMAT (1X,9F12.4,I8)
5     FORMAT (7X,9F12.4)
6     FORMAT (/20X,30H(P/PO) WALL/AXIS RESPECTIVELY//1X,9I12/)
      END
```

```
      SUBROUTINE TROPIC (PO,TO,PSTAT,F,DEN,VEL,EASY)
      COMMON /STAG/ A(8,21),CP(3,21),CV(3,21),WTM(21),GAMZ(21),RGAS(21),
     1PZ(21),TZ(21)
      COMMON /THERMO/ CPX(3),CVX(3),RAG
      COMMON /LIMITS/ VMIN
      ZERO=0.0
      PO=PO
      TO=TO
      P=PSTAT
      FUZZ=F
      PRAT=P/PO
      T=HANKY(CPX,PRAT,TO,RAG)
      RHO=P/(T*RAG)
      DEN=RHO
      DH=HOTS(CPX,T,TO)
      VELOC=SQRTF(DH+DH)
      VELOC=AMAX1(VELOC,VMIN)
      VEL=VELOC
      HO=HZERO(FUZZ)
      E=HO*RHO-P
      EASY=E
      RETURN
      END
      FUNCTION TSTAG (CP,TSTAT,VSQR)
      DIMENSION CP(3)
      T=TSTAT
      W=VSQR*0.5
      A=CSUBP(TSTAT)
      TZ=T+W/A
      DO 1 K=1,5
      H=HOTS(CP,T,TZ)
      ERROR=W-H
      CPTZ=CSUBP(TZ)
      DT=ERROR/CPTZ
      TZ=TZ+DT
    1 CONTINUE
      TSTAG=TZ
      RETURN
      END
      SUBROUTINE WEIRDO
      COMMON /EROS/ W(21,60,4),P(21,60)
      COMMON /NERD/ M,N,NT,MUFF,LIMIT,NEWKY
      DO 3 I=1,NEWKY
      K=M-I
      DO 2 J=2,LIMIT
      DO 1 L=1,4
    1 W(K,J,L)=W(K-1,J-1,L)
    2 CONTINUE
    3 CONTINUE
      DO 5 K=2,MUFF
      DO 4 J=2,LIMIT
    4 P(K,J)=PVNTS(W(K,J,1),W(K,J,4),K,J)
    5 CONTINUE
      RETURN
      END
      FUNCTION XMASS (NXSTA)
```

```
      COMMON /EROS/ W(21,60,4),P(21,60)                                 BT   2
      COMMON /NERD/ MF,NF,NT,MUFF                                       BT   3
      COMMON /SPOR/ S(60)                                               BT   4
      K=NXSTA                                                           BT   5
      SUM=(W(1,K,2)+W(MF,K,2))*0.5                                      BT   6
      DO 1 J=2,MUFF                                                     BT   7
1     SUM=SUM+W(J,K,2)                                                  BT   8
      XMASS=SUM*S(K)                                                    BT   9
      RETURN                                                            BT  10
      END                                                               BT  11-
      BLOCK DATA                                                        BU   1
      COMMON /CPDATA/ CP(3,8),WTM(8),NAME(8)                            BU   2
C     CP COEFFICIENTS FOR EACH CHEMICAL SPECIE                          BU   3
C     UNITS OF BTU/LB.MASS                                              BU   4
      DATA CP/0.231800,1.040000E-05,7.166000E-09,0.120765,1.720251E-04,-BU   5
     14.235305E-08,0.261531,-5.179134E-05,1.07508E-07,0.430062,1.676842EBU   6
     2-05,2.778587E-08,0.190481,5.646879E-05,-9.812500E-09,0.246445,-3.5BU   7
     364750E-06,1.251100E-08,0.124349,0.0,0.0,3.22600,1.757600E-04,1.0E-BU   8
     408/                                                               BU   9
      DATA WTM/28.97,44.011,28.011,18.016,32.000,28.000,39.944,2.016/   BU  10
      DATA NAME/'AIR','CO2','CO','H2O','O2','N2','A','H2'/              BU  11
      END                                                               BU  12-
```

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13. ABSTRACT

An analytical technique based on the time-dependent flow equations has been developed to predict the inviscid transonic flow field in axisymmetric propulsion nozzles. The analysis includes the treatment of axisymmetric nonuniform nozzle inlet profiles of total pressure, total temperature, specific heat, and molecular weight. The analysis is also capable of considering convergent-divergent, convergent, and shrouded or unshrouded plug nozzle geometries. A computer listing and three sample calculations are presented to illustrate some of the capabilities of the program.

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conical nozzles						
subsonic nozzles						
transonic nozzles						
analysis						
performance						

1. Nozzles -- Performance
2. " -- Mathematical Analysis
3. Computer programs -- Nozzle performance

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